SELECTION OF HAZARDOUS WASTE SITES FOR SUPERFUND FUNDING

WORKSHOP

Sponsored by

SUBCOMMITTEE ON DEPARTMENT OF HOUSING AND
URBAN DEVELOPMENT-INDEPENDENT AGENCIES
of the
COMMITTEE ON APPROPRIATIONS
U.S. SENATE

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WORKSHOP ON SELECTION OF HAZARDOUS WASTE SITES FOR SUPERFUND FUNDING

FRIDAY, MARCH 19, 1982

Washington, D.C.

The workshop met at 8:40 a.m. in room 1224, Everett McKinley Dirksen Senate Office Building, Mr. Sam Gusman (senior associate, Conservation Foundation) presiding.

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TIM HALEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION
RICHARD CORRIGAN, CH2M HILL

ALSO PRESENT: WALLACE BERGER, HOUSING AND URBAN DEVELOPMENT AND CERTAIN INDEPENDENT AGENCIES SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS

COMMITTEE OPENING STATEMENT

Mr. BERGER. The schedule indicates that we were going to start the workshop at 8:30. I had planned to spend 5 minutes making my opening re-marks. However, I am already 5 minutes over, so I will make it very very brief.

On behalf of Senator Garn, chairman of the HUD-Independent Agencies Appropriations Subcommittee, I would like to welcome you all here. As some of you may know, the subcommittee has responsibility for the funding of all of EPA's programs as well as for the funding of 18 other agencies in the Federal Government.

We have been having a series of hearings through the subcommittee on EPA's activities and, in particular, on the Superfund since this legislation was enacted. We will be having another such hearing on April 20, at which time we hope to use the results of this 2-day workshop to inform the subcommittee of the variety of opinions, conclusions, and recommendations that you may make relative to how we should proceed on the site selection issue.

Of course, we all know that this is not day one in site selection. A lot of water has gone under the bridge. There have been a lot of issues which have been raised relative to the model, the application of the model, and the steps we should take to implement the model.

What I would like to ask you to do, is to be very free and open with your opinions. We are going to have the issues you discuss in this 2-day workshop printed and available to the public. In addition, we would hope that the major conclusions, recommendations, and statements that come out of this workshop will be presented again on April 20 during our EPA hearings. We will ask the distinguished chairman of our workshop, Mr. Sam Gusman, and Mr. Joel Hirschhorn, from OTA, who has helped us set up the workshop, to attend this hearing and to summarize the results of this workshop for the Senators in attendance.

With that, I would like to spend another second or two thanking you, because I think, to a large extent, the strength that we have here in this country is demonstrated by this kind of activity today. We have 18 individuals who are participating in the workshop and who come from nine different States—they represent State governments, Federal Government, Congress, universities, industry, and environmental groups—a really broad spectrum of interest. And the subcommittee is extremely interested in what you have to say.

I would just urge you to do the best you can in being frank and open and we will certainly pay attention to you. We have a very, very difficult task. As you know, there have been between 10,000 and 11,000 sites that have been identified. We have a mandate to generate a list of 400. The proportion of those 400 that will receive remedial action will probably be relatively small, maybe half. I don't think anyone exactly knows now. But in any event, reducing the sites from 11,000 to 200, let us say, is a very difficult task and the Appropriations Committee wants to make sure that when we do that task, we wind up with the best investment for the public for the $1.6 billion we are going to spend.

So we would like some assurance that those States that are finally getting remedial action are the ones that are most in need of remediation and the ones that are most likely to provide the largest public benefit.

STATEMENT AND LETTER FROM SENATOR GARN

With that, I say once again, thank you, and would like to insert at this point in the record a statement from Senator Garn, as well as Senator Garn's letter inviting each of you to participate in the workshop.

[The statement and communication follow:]

STATEMENT OF SENATOR JAKE GARN

I would like to express my appreciation to all of the participants for their willingness to devote 2 days—including a Saturday—to the discussion of this very important topic. As chairman of the HUD-Independent Agencies Appropriations Subcommittee, I am faced with the task of setting priorities among literally thousands of programs administered by 18 Government agencies. The members of the subcommittee depend on individuals such as you to provide the expertise and insight needed to make these priority-setting decisions.

During the course of the workshop and our April 20 hearing on EPA, I will be interested in hearing about the current problems involved in hazard determination and site selection and how these might be resolved. Because of the subcommittee's responsibility for funding Superfund, I will be particularly interested in determining if additional congressional appropriations would have eliminated some of the delays encountered in the program to date. As many of you know, the subcommittee has asked GAO to review EPA's implementation of the Superfund and I will also be asking them to respond to these issues.

I also believe that the very process of bringing together members of industry, State governments, conservation groups, and EPA, in and of itself, serves a useful function. It presents an opportunity to better understand the motivation and problems faced of the various "players" involved in the implementation of the Superfund legislation. Such an understanding is essential if the program is to achieve its objectives in an efficient and effective manner.

Once again, I would like to thank you for agreeing to participate in this workshop.

LETTER FROM SENATOR JAKE GARN

FEBRUARY, 23, 1982.

The HUD-Independent Agencies Appropriations Subcommittee which I chair has the responsibility of funding all of EPA's programs. A growing portion of EPA's budget will be associated with the implementation of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund). As a result, we are carefully reviewing the manner in which the Superfund legislation is being implemented.

As part of this review process, we have asked the congressional Office of Technology Assessment to assist the subcommittee in conducting a 2-day workshop to examine the procedures and criteria for selecting hazardous waste sites. The workshop will be held in the Dirksen Senate Office Building, room 1224, on March 19 and 20, 1982, and your participation would be sincerely appreciated. As you know, the success of this effort will depend on the expertise of the participants and their willingness to enter into a frank and open discussion. You, and a dozen or so others, have been selected because we believe you will make a substantial contribution to the workshop and, ultimately, to the subcommittee's oversight of the Superfund.

I hope that you will be able to be a participant at the workshop and assist the subcommittee in its efforts to insure that the maximum benefit to public health and the environment result from the expenditure of Superfund moneys.

Details on the workshop will be provided to you by Wallace Berger of the subcommittee staff and Joel Hirschhorn of the congressional Office of Technology Assessment.

Sincerely,

JAKE GARN,
Chairman, HUD-Independent Agencies Subcommittee.

WORKSHOP FORMAT

Mr. GUSMAN. We have a rather overwhelming charge to us, as Mr. Berger has just stated it, to provide guidance that will be useful to the committee in deciding issues of funding for Superfund.

I suggest that we view our task as having two parts: First, to identify the issues that we think are most important. And second, to make sure that we create a clear impression of the variety of points of view that people have with respect to those issues.

Simply to identify the issues, I think, would be insufficient without giving some sense of whether there is basic agreement on the issues or whether there is a diversity of opinion.

So, as this session moves forward, I will be using my seat at the table to try to bring forward a fairly sharp list of the key issues and a fairly sharp expression of the key points of view.

So, it is not a question of expounding on one or another point of view to maximum advantage at this session. There are other opportunities for that. The problem here is to make sure that we express the different points on the key issues.

PROCEDURE FOR CREATING CONCISE RECORD

In order to do this, we will have a set procedure that we will follow this morning, this afternoon, tomorrow morning, and tomorrow afternoon. We will start with an informal, off-the-record discussion for the purpose of learning what we think the key issues are and for learning what the different points of view are, so that when we then go on the record we can create a concise and organized record.

It is very hard for a group this size, speaking informally with each other, to create such a record. So what has been done, if you look at your agenda, is to identify certain people who will be a smaller panel to summarize our off-the-record discussions. I am going to ask one person on each such panel to take the lead in starting the discussion.

Norman Nosenchuck, I wonder if I could ask you, on the first panel, to start it with an identification of what you see as the key issues, and then for each of the later panels I will similarly ask one person to start our on the record discussion.

Nonetheless, as each of you listens to what goes on during the opening presentation by Harold Snyder of EPA, and during the informal discussions that follow, I would ask you to keep notes on what you think are the key issues and what points of view you feel you need to express.

With that introduction, what I would propose is that we go immediately to a presentation for about 1 hour by Harold Snyder of EPA. Then we will go off the record and, at that time, we will introduce ourselves to each other and start our discussions.

EPA SLIDE PRESENTATION ON RANKING SYSTEM

Mr. SNYDER. Thank you, Mr. Gusman.

Actually, we are going to start the EPA presentation—we will have really three parts in that hour. The first part will be presented by Russ Wyer, who is sitting off to my left, who is the Acting Director of Hazardous Sites and Control Division within EPA's Superfund program—he also happens to be my boss. He has responsibility not only for programs for developing priorities but also for the implementation of remedial work.

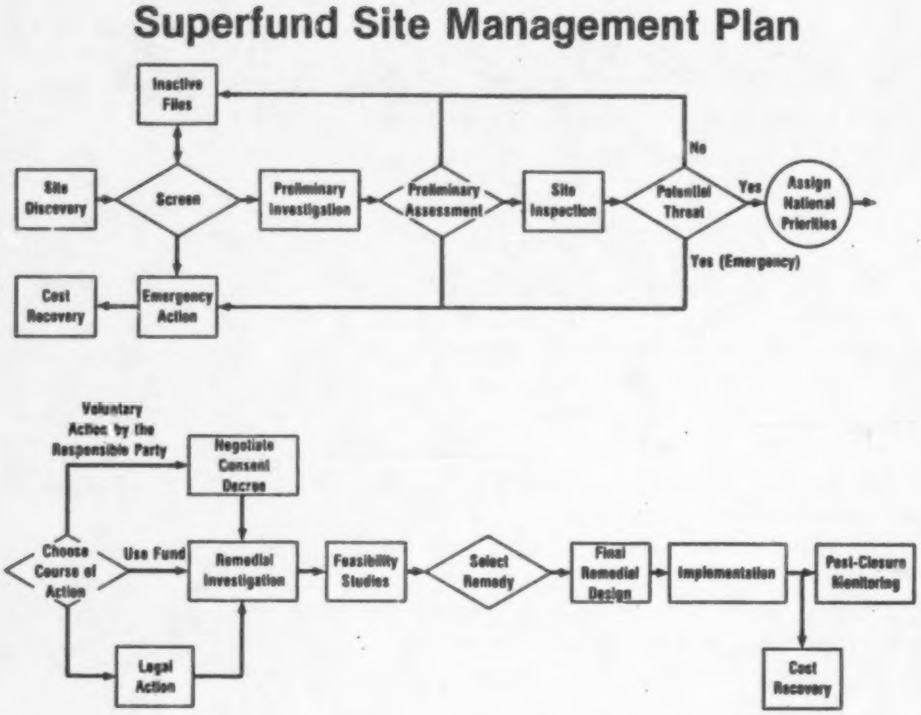
Following Russ's presentation, Steve Caldwell, to my immediate left, will give a presentation on how the hazardous ranking system was developed and, time permitting, either Steve or myself will brief the group on how we developed the interim priorities list, the extent we went through in using the hazardous ranking system.

We have a few slides to illustrate our point. I have some handouts here that we will start around the table; the slides that will be used first by Russ and then by Steve.

SUPERFUND PRIORITY LISTS

Mr. WYER. My presentation will be very brief. In order to set the proper tone for the issues and discussions of the national priorities list, it is important to understand where the national priorities list fits into the overall Superfund program strategy. My overview will discuss not only the remedial program, which is the one where Superfund moneys are used for cleanup, but we will also touch on enforcement actions and voluntary cleanup action which deal with those sites that are not cleaned up with the Superfund moneys.

You all have a copy of the slides. If you have difficulty reading the slide, just look at the third page of the handout.


Superfund Site Management Plan
Inactive Files
Site Discovery
Screen
Preliminary Investigation
Preliminary Assessment
Site Inspection
Potential Threat
No
Yes
Assign National Priorities
Yes (Emergency)
Cost Recovery
Emergency Action
Voluntary Action by the Responsible Party
Negotiate Consent Decree
Choose Course of Action
Use Fund
Remedial Investigation
Feasibility Studies
Select Remedy
Final Remedial Design
Implementation
Post-Closure Monitoring
Legal Action
Cost Recovery

SLIDE 1

SUPERFUND SITE MANAGEMENT PLAN

What we have is an idealized diagram of how the Superfund site management plan works. Obviously, we start off with site discovery, and right now we have in the neighborhood of 11,000 sites that we are aware of. This information comes from the States, it comes from work that we did prior to the passage of the Superfund, and it also came from the section 103(c) notification requirement of the act.

With that large number of sites, it is necessary to go to a screening step, and this is handled through an initial investigation-type operation which is a paperwork exercise. We need to get all the information we can, evaluate whether the site is a hazard, and determine what type of waste are at the site.

We anticipate that through this initial screening, the preliminary investigation, and preliminary assessment that we will have a large number of sites dropping out.

We also will be able to determine whether or not there is an emergency situation at one of these sites. As you can see, the site will drop out and go to the emergency action program.

As we go through this process, the information we are looking for is not only for the remedial program, but also for enforcement and voluntary party cleanup. So there is a procedure for identifying responsible parties.

SITE INSPECTION PHASE

Now, the program gets more intense by the time you get to this site inspection phase and at that point we will be dealing with a far smaller number of sites, hopefully we will screen out approximately two-thirds of the sites prior to actually going into the field and undertaking field investigations.

This is one of the most important steps because again we are focusing on determining the extent of contamination, the impact on ground water, surface water, or air, and the type of waste involved. It provides the basic information upon which we can go to the next step which is the national priorities ranking.

That step is also critical from the standpoint of refining and getting more detailed information with respect to enforcement. Again, the focus will be to identify the responsible parties as well as determining the extent of the environmental or public health impact.

HAZARDOUS RANKING MODEL

Potential threat—this is where the hazardous ranking model comes in. This will be the main topic of discussion for the rest of the day and tomorrow. Once you have gone through and determined your potential threat, then we are in a position to establish the national priorities.

Once we have the national priorities list, we still have a series of decisions to make before we spend money for complete site cleanup. This area here is probably one of the most difficult in the program, it is a matter of balancing voluntary party cleanup, enforcement, and use of the fund.

Sites that required use of the fund can only come from the national priorities list. Enforcement or actions by voluntary parties—there may be sites on the list where a voluntary party is going to clean up—will be negotiations between EPA and responsible parties. They will take the lead in cleaning up. We may end up in a situation where we have a responsible party who refuses to clean up and we may take the legal actions available under RCRA and also under CERCLA. If both of these two actions fail, then we will use the fund for the site cleanup. And the use of the fund is actually a step approach, it can either be done by the Federal Government or it can be done by the States.

FIELD INVESTIGATION AND FEASIBILITY

The next steps are straightforward—a detailed field investigation and feasibility study. We will determine the most cost-effective solution, select the remedy, go into design, implementation, and then, finally, post-closure monitoring. If necessary, we will come back with a cost-recovery mechanism to recover the funds if a responsible party has been identified.

To give you an idea of what the numbers mean, on our interim list, we have a list of 115 sites. By going through this process we end up with approximately 50 sites that we are able to consider for Superfund funding. That does not mean that the other sites have just disappeared or there will be no work done on the sites, but voluntary actions and legal actions will take place on those.

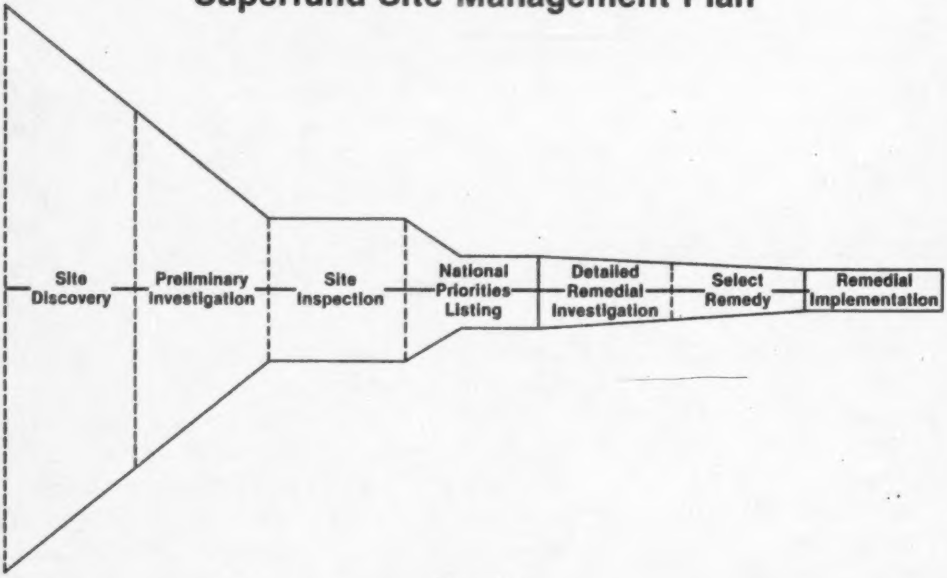
STATES' RESPONSIBILITY

The legislation contains various parameters to be considered for developing the national priorities list. One item that Steve will discuss includes an item called State preparedness. I think it is important to point out that State preparedness is actually taken into account at this point and we are not looking at State preparedness prior to ranking sites for the list.

As you well know, the States are responsible for paying 10 percent of the cost; they are responsible for designating an off-site disposal area they are responsible for operation and maintenance.

So those assurances are decided along the bottom line area here. Also from the standpoint of State preparedness to carry out these activities, the States will make a decision at this point. I estimate that about 50 percent of the sites are being handled by the States.

Superfund Site Management Plan


Site Discovery
Preliminary Investigation
Site Inspection
National Priorities Listing
Detailed Remedial Investigation
Select Remedy
Remedial Implementation

SLIDE 2

SITE SELECTION

This is what we might call a selective funneling approach. And it graphically shows what I was describing before. As we went through the site management plan, we start off with a very large number of sites, we are estimating 10,000 to 11,000, and we are going to focus down to about 170 to 200. I think one of the points that was made earlier this morning was: How do we get to that end point and what is the significance of the national priorities list in getting there.

What you see here, the focusing down to 200, is specifically for the remedial program and the expenditure of Superfund moneys. It does not mean that sites that are identified as we come down will just be set aside and nothing done.

Once we get to site selection—and I believe this is in the neighborhood of 1,350—the range in here represent the total program and these lines will continue out parallel. This is where voluntary cleanup enforcement action and independent State cleanup will take place.

It is also important to note that the emergency program does not focus in like this. The emergency program can pick up sites anywhere along here and actions can be taken using Superfund moneys.

So, as you see this focus, the national priorities listing comes right in here. Again, we still have some activities going on as we move through the remedial investigation and feasibility phases where the number of sites will reduce since this work will be done in concert with our enforcement program. This is where the 170 to 200 range comes out.

So again, even though the remedial program comes to a very narrow focus, it is done by starting with the national priorities list here and in conjunction with other actions.

PURPOSE OF ASSIGNING NATIONAL PRIORITIES

Identify Field of Sites Against Which To Proceed
Objective Is To Clean Up Sites
- **—Voluntary Action**
- **—Consent Decrete**
- **—State Action**
- **—Federal Action**

Program Is Result Oriented

SLIDE 3

IDENTIFICATION OF SITES

The purpose of assigning the national priorities list: Identify the field of sites in which we will proceed. By that I mean any one of the mechanisms—emergency action, voluntary cleanup, enforcement, or use of the fund.

The objective is to clean up the site through these various mechanisms.

And the last item. I think there are people who are concerned about the last item, but it is true, the program is result oriented. We are working very hard to achieve those results and I assure you we will never get to the point of achieving anything unless we have a mechanism for establishing the national list.

RELEVANCE OF POSITION ON NATIONAL LIST

On Versus Off—High Relevance
High Versus Low—Moderate Relevance
Sequential—Irrelevant

SLIDE 4

SITES POSITIONS

This would be the last slide on my presentation. I think it is important to also recognize the importance of the sites position on the list. If you are not on the list, there is a high relevance to it. What it means is there is no way that we can use funds for remedial cleanup. They have to be on the list. So that is very significant.

Now, if we are talking about a list of 400, what does it mean if you are on the top 10 versus the bottom 10? There is some relevance to that. However, keep in mind that we do not know ahead of time which sites and where on the 400 list there will be voluntary cleanup or enforcement actions. Right now we have not looked at the 115 list as working from top to bottom. We are working throughout the list because we are searching for, through the decisionmaking process, those sites that will not be cleaned up unless we use the trust fund moneys.

The same will happen with the 400 list. And if the ratio holds where we got 50 Superfund sites out of the 115, it might be that for a list of 400, half of those will be Superfund sites and the other 200 will be handled through enforcement and voluntary cleanup. Obviously, if we get a list of 800, then there will be a situation where some sites are going to fall at the bottom. We know there are more than 200 bad sites and we will have other mechanisms—State or similar type of State action—that will have to be taken in the future to handle those.

With respect to the sequential listing of the sites, whether they are number 89 or 95 makes little or no difference. I think that the rationale as I just discussed, high versus low, does not apply as you get into smaller significant increments.

Mr. WYER. Steve now will present to you the hazard ranking system.

ENVIRONMENTAL PROTECTION AGENCY HAZARD RANKING SYSTEM

SLIDE 5

REQUIREMENTS UNDER CERCLA SECTION 105

Rank Waste Sites to Identify 400 Top Priorities Among Known Response Targets and 100 Highest Priority Facilities

Based on Relative Risk or Danger to Public Health or Welfare or the Environment Considering:

- **—Population at Risk**
- **—Hazard Potential of Substances Present**
- **—Potential for Drinking Water Contamination**
- **—Potential for Direct Human Contact**
- **—Potential for Destruction of Sensitive Ecosystems**
- **—State Preparedness**

Purpose: Taking Remedial Action

SLIDE 6

REQUIREMENTS UNDER CERCLA SECTION 105

Mr. CALDWELL. The basis for the priorities system criteria and the list itself is found in the legislation under CERCLA, section 10580. Part A requires the President to develop criteria for setting priorities. Part B requires us to rank sites, identifying the top 400 priorities. Part B does mention the 100 highest priority facilities and we must have the ability to discriminate among the 400 to develop the list of 100 facilities.

The criteria are to be based on the risk or danger to public health or welfare or the environment considering those specifics given in the act itself: Population at risk, hazard potential of substances present, potential for drinking water contamination, potential for direct human contact, potential for destruction of sensitive ecosystems, and State preparedness.

The purpose for developing the priorities list is to take remedial action.

OBJECTIVES

Develop a List of Candidates for Action

Discriminate Among the Worst Releases Based on Threat to Public Health, Welfare, and Environment

Produce Consistent Results, Minimizing Users' Ability To Bias Scores—i.e., Promote Fairness

SLIDE 7

OBJECTIVES

Examining the legislation and examining what we felt to be a project that could be accomplished, we came up with some objectives to complement these requirements. First off, we felt that a good achievable objective was to develop the list of candidates for action, and this speaks to the high relevance of something being on the list versus something being off the list.

We felt that in developing a system we had to discriminate among the very worst releases. That is, among the 10,000 or 11,000 places that we know about we have to pull off the top 4 percent in terms of risk, and we need to discriminate somewhat among them. It is equivalent to developing an IQ test that discriminates among the genius portion of our population or among the retarded portion of our population. It is not equivalent to developing a method of assessing risks at all hazardous waste facilities, which suggests that it—the hazard ranking system—may not be very applicable to other uses such as discriminating risks among all hazardous waste facilities that one might want to permit at some future date. It will develop very specifically for our purposes in finding the 400 worst among 10,000 to 20,000 places.

We wanted to develop a system that will produce consistent results when used by a large number of people. We knew that to implement this program we would have to use a pyramid-type structure. Perhaps local governments will be using the system, certainly State governments would be using the system, and, of course, our people will be using the system also, and our agents and the State governments' agents; that is, the consulting firms, the contractors out there. And we also knew that the private sector, private industry, would be using it themselves. Thus we wanted to try to develop a system that would produce fairly consistent results among all these different users.

ADDITIONAL ASSUMPTIONS FOR THE SCORING SYSTEM

Require Evidence

Blind to Political, Social, Economic Considerations

Urgency, Costs, Selection of Appropriate Remedy, Potential for Enforcement, and Potential Effectiveness of Remedies To Be Considered Independently

State Priorities Will Be Considered Separately

SLIDE 8

ADDITIONAL ASSUMPTIONS FOR THE SCORING SYSTEM

Here are some of the other additional constraints or assumptions that we put on ourselves in developing this system. We felt that we should have a system that requires evidence; not legal evidence, but objective things we could hang our hats on and say, "We have observed pollution here." We felt it was not possible from our program standpoint to simply allow the use of judgment in doing this—setting priorities. We had to be able to point to specifics that are causes for our considering these to be bad places.

We decided that we would not take into account political, social, or economic considerations in evaluating facilities, that it would be strictly on the basis of those factors that relate to risk and to our program considerations.

There were suggestions at times, for example, that we should take into account the number of letters that we have received from Congressmen on a specific site. We rejected those types of suggestions.

We also felt that we had to keep it limited somewhat in terms of our focus. Urgency is a major consideration in evaluating remedial actions as well as removal action under Superfund. Costs are certainly major considerations. Selection of the appropriate remedy and all these other factors up here are important factors. But if we try to take them into account in establishing the list, it would be too complex for us to deal with, and we tried to keep it simple in establishing the list. We found, at least we were unable to identify good objective characteristics of urgency in a situation, that we would have to depend on human judgment, and human judgment is probably, in the end, the best criterion we could use. It is just that it is not consistent and therefore we have to reject it for setting priorities.

We decided also that State priorities would be considered separately after we had developed our evaluation of risks.

CHARACTERISTICS OF RELEASES AND FACILITIES

Variety of Types

- **—Drum Dumps**
- **—Landfills**
- **—Piles (Tailings, Products, Wastes)**
- **—River Sediments**
- **—Underground Tanks**
- **—Wells**
- **—Spills**
- **—Hundreds of Miles of Roadsides**
- **—Residues From Explosions, Incineration, and Evaporation/Sublimation**
- **—Combination of the Above**

Wide Variety of Substances Included as Hazardous (e.g., Ammonia and Dioxins)

Variety of Effects

SLIDE 9

CHARACTERISTICS OF RELEASES AND FACILITIES

The system that we came up with had to be applicable to releases, not just to hazardous waste sites, and releases come in a tremendous variety. When people think of hazardous waste sites they tend to think of drum dumps in places like the Northeast and so on. In fact, those are probably the minority of places that we have to deal with. When people think of remedial action, they think of a flatbed truck and loading the drums on the trucks and taking them someplace else, wherever that might be. That is not a typical remedial action and that is not a typical hazardous waste site or a typical release. In North Carolina we have hundreds of miles of roadsides contaminated with PCB's. In other places we have contamination due to explosions or fire, evaporation, or sublimation of the substances. We have sediments in rivers and so on and so forth.

So our system will have to address this tremendous variety of manifestations of problems, and it will have to address problems caused by a wide variety of substances as defined in the act. Hazardous substances takes in a broad range of things, from ammonia to dioxins. We found various kinds of substances that can cause serious problems. We note that in Long Island a major part of an aquifer has been rendered useless by nitrates caused by the disposal of everything from human waste to dog waste and due to agricultural practices. There is a tremendous variety of effects involved.

So, we had to have a system that is very flexible and that could deal with this broad range of things.

REVIEW OF EXISTING SYSTEMS

- **System for Evaluating Waste-Disposal Sites**
  - **—LeGrand**
- **Surface Impoundment Assessment**
  - **—EPA—Office of Drinking Water**
- **Classification of Hazardous Waste**
  - **—EPA—Office of Research and Development**
- **Rating Methodology**
  - **—JRB Associates, Inc. (EPA—Enforcement/Spills)**
- **State Agencies**
  - **—California**
  - **—Connecticut**
  - **—Michigan**
  - **—New Jersey**
  - **—New York**

SLIDE 10

REVIEW OF EXISTING SYSTEMS

The starting point for any study like this is a review of the existing systems and we took a hard look at what was out there. I will very quickly just name these and dismiss them. After having examined these, we found that none of them provided us a system that was sufficiently reliable, that gave consistent results, that gave facilities of similar risk, that gave consistent results in correspondence within a similar range. For example, perhaps the most nearly analogous system to our own, the rating methodology by JRB Associates, would produce results where facilities having similar risks could score on a 100-point scale anywhere from about 25 to 100. That range of scores was certainly not sufficiently narrow to give us a good 400 list.

We polled every State agency that we had heard might be using a priorities system. We checked with California, Connecticut, Michigan, New Jersey, and New York. And by and large, in virtually all cases they were using something either very close to one of these or were using a classification system.

DEVELOPMENT OF THE HAZARD RANKING SYSTEM

Built Upon JRB Work
  —Rating Factors
  —Similar Scales
New Structure
  —Exposure Pathway Approach
  —Multiplicative Categories
  —Additive Factors Within Categories
  —Aggregate Site Scope

SLIDE 11

DEVELOPMENT OF THE HAZARD RANKING SYSTEM

In fact, a system was built upon JRB's work. JRB has a system whereby a number of factors are examined based on a series of scales, values are assigned on a zero to 3 scale. For example, for toxicity, highly toxic substances are given 3, somewhat less toxic substances are given a 2, and so on down the line.

We use a similar approach in ours. JRB is a direct predecessor of our system. It was developed by the Agency. It was developed for use at hazardous waste sites for the purpose of determining on very limited information which sites should be investigated. We felt that it did not give sufficiently accurate results, again, for the kinds of decisions that would be made based on the results.

We also looked at how problems occur and what factors are important in determining that a problem will occur. And we found that the relationships among the factors themselves were very important, that it was not simply a matter of looking at each factor individually, taking them individually and summing the effects of each factor. We found that, to use the mathematical expression, risk is a function of dependent relationships among the variables.

Putting that simply, we found in some cases variables could be controlling factors. One could have the most toxic substance in the world, you could have a very nearby population to be exposed, you could have very sensitive ecosystems involved, and yet, if that substance were totally contained, the risks would, in fact, be very very low, if there were any risks whatsoever. In this case, containment could be a controlling factor. The same with toxicity. You could have all the factors that would lead to the problem, but if the waste were not truly toxic, you would have no problem.

That suggests, when you describe this with an equation, that these factors are multiplied together, unlike the structure used for JRB. So we decided to establish a new structure.

In addition, we looked to the approach used for risk assessment by the nuclear power industry and they, of course, use a similar equation: Risk is a function of the probability of an event occurring times the magnitude of that event or times the amplitude, or however you want to put it; the numbers of people involved and so on. In addition, they look at all the different ways in which an event can occur; that is, an adverse event could occur. For example, if you are doing a risk assessment in the nuclear power industry, you will look at transportation accidents as one source of risk. One might look at a core meltdown and the probability of that happening, and the numbers of people affected and the types of effects to occur in doing a risk assessment in a nuclear power industry. That means one must aggregate, one must somehow combine the scores or the quantitative statements for the different types of accidents, the different types of problems that can occur. Thus, you have to identify all the types of problems that can occur.

Mechanisms Involved in Incidents of Damage by Disposal Method[a]

Disposal Method	Surface Impoundments	Landfills, Dumps	Other Land Disposal[b]	Storage of Wastes	Smeltings, Slag, Mine Tailings
Number of Cases	89	99	203	15	15
Damage Mechanism (Number of Cases)					
Groundwater (259)	57	64	117	10	11
Surface Water (170)	42	49	71	—	8
Air (17)	3	5	9	—	—
Fires, Explosions (14)	—	11	3	—	—
Direct Contact Poisoning (52)	1	6	40	5	—
Wells Affected[c] (140)	32	28	74	4	2

a) The tabulation refers to 421 cases studied thus far. The numbers in the matrix add up to more than 421, because several damage incidents involved more than one damage mechanism.

b) Haphazard disposal on vacant properties, on farmland, spray irrigation, etc.

c) Not included as a damage mechanism.

Note: The data presented in this table have been derived solely from case studies associated with land disposal of industrial wastes.

SLIDE 12

MECHANISMS INVOLVED IN INCIDENTS OF DAMAGE BY DISPOSAL METHOD

In looking at the literature, what literature was available, we found that the Office of Solid Waste in EPA several years ago had tabulated various types of problems that had been observed associated with hazardous waste disposal. And we were very fortunate in having this analysis and in having the frequency distributions of the problem types so that we would have some understanding of how often one might encounter these kinds of problems.

PATHWAYS OF MIGRATION/EXPOSURE/HARM

Ground Water
Surface Water
Air
Fire and Explosion
Direct Contact

SLIDE 13

PATHWAYS OF MIGRATION/EXPOSURE/HARM

We were able to observe the most frequently occurring problem is ground water; second, surface water; and followed by air, fire, and explosion, and direct contact—direct contact being a fairly frequent type of problem also.

RANKING SYSTEM CONSIDERATIONS

Considerations for Selecting Factors
  —Commonly Available Data
  —Inexpensive Data
  —Must Consistently Vary Directly/Inversely With Risks
  —Must Be Measurable
Lowest Common Denominator
Other Considerations in Developing a Ranking System
  —The Larger the Number of Factors, the Less Sensitive Scores Are to Individual Overriding Considerations
  —Avoid Redundancy

SLIDE 14

RANKING SYSTEM CONSIDERATIONS

So we decided to structure our system around these five different types of occurrences and develop statements that would relate to the risks associated with these. In developing these statements, we learned something about how one might develop a model or scoring system related to these. For example, for a system to be useable by the Agency, regarding the factors that we would choose, it would be very desirable that they be commonly available data. That is, when we have sent people out in the past to inspect facilities, we have asked them to collect certain kinds of data. It would be highly desirable that we be able to use those kinds of data in our system. Otherwise we would be starting from scratch in our data collection.

We would want inexpensive data. In the beginning we estimated that while we were targeting for a list of 400 facilities, that the system itself would need to be applied to somewhere between 1,000 and 2,000 facilities total. Obviously, if we knew which 400 to score in the first place, we wouldn't need a scoring system.

That suggests that each data element should be as inexpensive as we can live with and that, for example, a data element that would cost

$1,000 to collect at one site nationally would cost $1 to $2 million to collect and we certainly wanted to minimize the cost of this program relative to what would be available to clean up these facilities. A data element that costs over $20,000 then, that probably becomes almost infeasible to use in our system. That $20,000 would, of course, come out to be as much as $40 million to the public agencies for one data element.

We have found that in terms of giving good results, our data elements have to vary directly or inversely with the risks on a consistent basis. That is, that some data elements might be very useful some of the time but they need to be useful nearly all the time or else we will be introducing a lot of noise randomness into the scores.

Finally, we are looking for data elements that are measurable. Something you could hang your hat on again. At a minimum, we have to be able to define it as a yes or no function. We decided to go with an approach that one might describe as the lowest common denominator approach. That is, we decided that we should use a consistent set of data for all sites across the country. We would not build a system designed to use half a billion dollars' worth of data in one case and $2,000 worth of data in another. We decided that there was a certain minimum amount of data needed to successfully evaluate the risks at a facility, and we could not accept less. Some of the comments that we have received have said we penalize sites where there are not good data. That is not really true. We simply have said that we have to have a certain amount of data in order to do the job. There is a floor below which we will not go. We also have not built parallel systems designed to take into account detailed data where they exist, at least not at this stage.

Some other considerations in developing the ranking system; we found that the larger number of factors, the less sensitive scores are to individual overriding considerations, all things held equal. And finally, we found it was highly desirable to avoid redundancy in the factors. Perhaps as a corollary to that, you do not want to have two factors which tend to measure the same.

FACTORS CONSIDERED BUT DELETED

GROUND WATER

- **—Physical Model**
- **—Solubility**
- **—Infectiousness**
- **—Radioactivity**
- **—Concentration**
- **—Corrosivity**
- **—Bedrock Permeability**
- **—Depth to Bedrock**
- **—Slope of Bedrock**
- **—Cation Exchange Capacity**
- **—Storm Violence**
- **—Depth of Screen Zone of Well**
- **—Number of Wells Within 3 Miles**
- **—Presence of Aquifer Recharge Area**
- **—Critical Habitats**

SLIDE 15

FACTORS CONSIDERED BUT DELETED

I won't go through all these. This is a list of some of the factors that we considered seriously and we sought comment on at various times and finally rejected.

FACTORS CONSIDERED BUT DELETED

SURFACE WATER

- **—Physical Model**
- **—Solubility**
- **—Infectiousness**
- **—Radioactivity**
- **—Concentration**
- **—Corrosivity**
- **—Net Precipitation**
- **—Storm Violence**
- **—Ground Water Flow to Surface Water**
- **—Critical Environment**
- **—Size of Water Body**
- **—Potential for Dilution**
- **—Resources Affected**

SLIDE 16

FACTORS CONSIDERED BUT DELETED

For example, physical models right here [pointing]. We suggested that perhaps we would give a score to a site if someone could demonstrate a good numerical model that would show that the site would pollute rather than requiring that someone demonstrate that pollution is occurring or rather than using our scoring system related to the threat of pollution occurring. In the end we rejected it because Sue Ferguson of Texas said: "If you don't specify the type of model, I can come up with a model that will show that anything will pollute." And we felt that we would not achieve consistent results.

FACTORS CONSIDERED BUT DELETED

AIR

- **—Ignitability**
- **—Persistence**
- **—Infectiousness**
- **—Radioactivity**
- **—Concentration**
- **—Stability Class**
- **—Unusual Topography**
- **—Wind Direction**
- **—Presence of Natural Resources**
- **—Population Exposed/Density**
- **—Presence of Transportation Routes**
- **—Mean Wind Speed**
- **—Soil, Fire and Explosion, and Direct Contact Pathways**

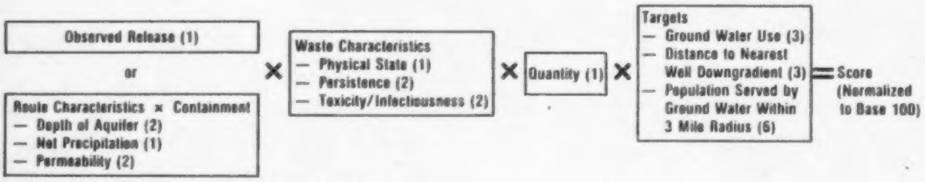
SLIDE 17

FACTORS CONSIDERED BUT DELETED

Solubility is another factor similar to that. Solubility is a good one to illustrate the factor that doesn't act consistently. Yet, in many cases, solubility of the substances involved relates to the probability of pollution occurring and to the likelihood of that pollution reaching people. Highly soluble substances will migrate faster than insoluble substances. That is particularly true with inorganic chemicals. But with organic chemicals, you can often have highly insoluble substances, substances that will not mix very well with water, and yet they will migrate fairly rapidly, and there are enough numbers of those exceptions to eliminate solubility as a good measure in scoring risks at facilities.

EPA Hazard Ranking System

Ground Water



Observed Release (1)

or

Route Characteristics × Containment
- Depth of Aquifer (2)
- Net Precipitation (1)
- Permeability (2)

×

Waste Characteristics
- Physical State (1)
- Persistence (2)
- Toxicity/Infectiousness (2)

× **Quantity (1)** ×

Targets
- Ground Water Use (3)
- Distance to Nearest Well Downgradient (3)
- Population Served by Ground Water Within 3 Mile Radius (6)

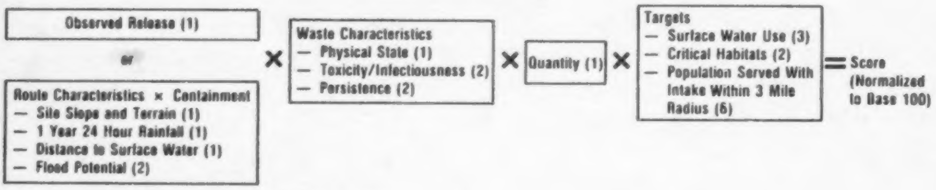
= Score (Normalized to Base 100)

*Numbers to the right of rating factors (in parentheses) are multipliers

SLIDE 18

EPA Hazard Ranking System

Surface Water



Observed Release (1)

or

Route Characteristics × Containment
- Site Slope and Terrain (1)
- 1 Year 24 Hour Rainfall (1)
- Distance to Surface Water (1)
- Flood Potential (2)

×

Waste Characteristics
- Physical State (1)
- Toxicity/Infectiousness (2)
- Persistence (2)

× **Quantity (1)** ×

Targets
- Surface Water Use (3)
- Critical Habitats (2)
- Population Served With Intake Within 3 Mile Radius (6)

= Score (Normalized to Base 100)

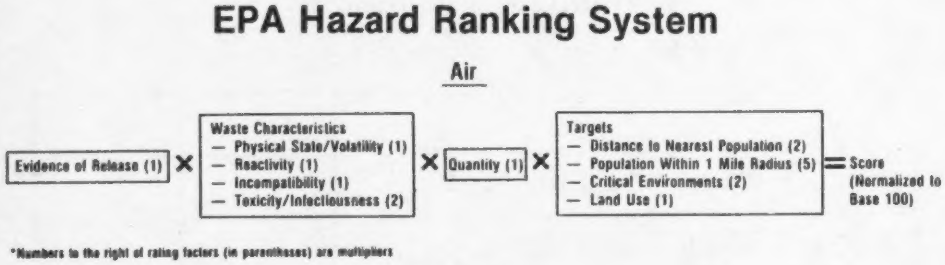
*Numbers to the right of rating factors (in parentheses) are multipliers

SLIDE 19

EPA HAZARD RANKING SYSTEM

The system we came up with, then, uses our structure of multiplying major factors and groups of factors. It limits the total number of factors we use, basically uses inexpensive factors and so on. I am not going to go through all the details of this at the present time. I hope that most of you are fairly familiar with it. You might want to examine this schematic. We found it to be very helpful in presenting the information if you are not familiar with the system.

One note about these numbers in parentheses, these are rating factors that we give to each factor in the system. They were there to accomplish two things. One, we do know that some factors are more important than others. It is our opinion, our judgment, that toxicity and persistence are both more important characteristics in determining risk than the physical state of the substance involved. However, physical state does relate to risk. They are also useful given the fact that the weight of each factor in a system like this is a function of the number of factors added together. By the way, things in the boxes are added. The weight of the factor is a function of the number of factors in each box and these weighting factors were used then to adjust the weights of these various categories of factors.



EPA Hazard Ranking System

Air

Evidence of Release (1) ×

Waste Characteristics
— Physical State/Volatility (1)
— Reactivity (1)
— Incompatibility (1)
— Toxicity/Infectiousness (2)

× Quantity (1) ×

Targets
— Distance to Nearest Population (2)
— Population Within 1 Mile Radius (5)
— Critical Environments (2)
— Land Use (1)

= Score (Normalized to Base 100)

*Numbers to the right of rating factors (in parentheses) are multipliers

SLIDE 20

EPA HAZARD RANKING SYSTEM

Again we developed a scoring system for each of the major pathways involved. However, when we sat down and examined what we were getting with our testing, based on actual field observations, we found that first off scores that were related to fire and explosion, scores that were related to direct contact by and large indicated types of problems that we would not correct using remedial actions per se. They were indicative of the needs for perhaps rapid response as opposed to a remedial action. Many direct contact problems could be corrected using a fence, for example. Fire and explosion—that is, serious fire and explosion—need to be addressed immediately. These did not square very well with our program requirements for the priorities list, and in the end we removed those from our total site scoring to be used for setting priorities for remedial actions. They are still taken into account, however, in looking at remedial action, and we still instruct the EPA regions and request the States to score those pathways.

EPA Hazard Ranking System

Combined Site Rating

	S	S^2
Ground Water Route Score (S_{gw})		
Surface Water Route Score (S_{sw})		
Air Route Score (S_a)		
$S^2_{gw} + S^2_{sw} + S^2_a$	▨	
$\sqrt{S^2_{gw} + S^2_{sw} + S^2_a}$	▨	
$\sqrt{S^2_{gw} + S^2_{sw} + S^2_a} / 1.73$	▨	$S_M =$

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EPA HAZARD RANKING SYSTEM

We looked at the way we could aggregate the scores for the various pathways and we found that we have a problem in that a single pathway problem, a very serious ground water problem, for example, might not show up very high because of a lack of score in two other routes and that a much less serious site in terms of risk would perhaps score just as high because of much less serious problems in all three pathways or in two of the pathways. We had to find a way to aggregate the scores that would give us some measure of additional risks from additional pathways if we have a multiple pathway problem and yet not completely mask out high-scoring single pathway problems. We evaluated a number of different approaches and finally decided to go with one where we aggregate the squares of the scores and then take the square root of them. The net effect of that approach if you have a single pathway problem and it is serious, is that you will get a fairly high score, significantly high to get on a priorities list, sufficiently high to get way up on the priorities list.

If you have no scores in the incremental pathways, the second pathway or tertiary pathway, you won't get many points; that is, you won't get many additional points. If you have high scores on those, though, the site will be elevated and the incremental risks will be reflected.

I am going to turn it over to Hal.

SYSTEM IMPLEMENTATION

Mr. SNYDER. The system that Steve talked about was first applied in what we have looked as the interim priorities list which most of you know came out in late October 1981, and we started that process in the summer of 1981.

What we did was, first we asked the States and the regions to identify candidates, and that was really the first level of screening. And they were to select the sites they considered to be relatively serious and they were to select sites where there was existing data. We wanted to do this in a very limited period of time so there was not an opportunity to go out and investigate sites that had not already been investigated. That was a decision we made very early on.

There were 282 sites submitted through the States, primarily from the States. I think there were only a couple of cases where scores were submitted by EPA regional by themselves. We also asked States to designate their highest priority sites out of those that they submitted and that was the first introduction of that portion of CERCLA that talked about States being able to do that. So we wanted the States to make that designation.

We felt that we needed a way to assure quality. So we set up a QA program for this effort. And our first plan was optimistic that we felt that if we randomly selected some sites, and we selected 35 out of the top 115 scores based on these initial submissions, and we do a QA check and things looked pretty good, we will move on and announce our list.

When we did that, we did find that there was some inconsistency in the way of the score and there were a number of reasons for that. The most charitable—we think those reasons may have related to the amount of training that we had been able to provide our regions and States. We assume it was that type of issue rather than someone trying to gain score so that site came out better for them, whatever way they wanted it to come out. Some people want sites to go up and some people want sites to get down, so it doesn't become an issue. We think these are more related to training.

SELECTING SITES

We then selected the top 175. Our objective was to get the top 100. So we took the top 175 and we rescored them. We used a theme that we assembled a team, we assembled that contract effort that we have in EPA and individuals that are familiar with sites. By these quality check scores we assembled the top 100. Then we actually had the process of assembling what we call the interim priorities list because, as you know, we asked for States' top priorities, so we then wanted to include the States' top priorities in that interim list.

Now comes the magic as to why the list is 115 when we started out with the objective to make it 100. First, some States' priority, or many States' priority sites, were included by score in the top 100, they had scores that were high enough to be in the top 100. There were some States that had no sites by score in the top 100 so, in that case, we took their designation of the top-priority site, added it to the bottom of the list. This was the way we were heading toward the 115 list. A decision was also made in cases where States had designated the top priority site but that site did not score in the top 100 and some other site from that State did, we would then go through a substitution process and we would drop out the lowest scoring of their sites that got into the 100 by score.

So you will see, there were actually 20 sites that are in the 115 that got there by decisionmaking and not by score. So 25 of them are mixed in various points in that list, and 15 of them are at the bottom.

EXPERIENCE WITH THE SITE LIST

Let's chat a bit about our experience with the list. And now we are looking at the list as a list and as a working tool. And, in general, we believe we got good results. Maybe we have a special view, but we believe we got some good results. That doesn't mean it was perfect, but we believe we got good results. In some cases we think there may have been some serious problem sites excluded because there was not sufficient waste quantity data.

As some of you may know, Steve didn't make a special point, but as you look at that equation of blocks that was in the last series of slides that Steve talked about, waste quantity is the single very primary factor in the method that we use for developing the interim list. So, if you did not have any waste quantity data, it essentially zeroed out there, so we probably lost a few serious sites that way for that reason. Waste quantity is a special focus on our own efforts how we revise this for later work.

As I indicated earlier, we need better training on how to use the model ranking system to be more clear. Food chain problems were not expressed very well. From our own analysis to develop that belief, a more comprehensive approach would be necessary; that way we can balance food chain and other health food indicators such as drinking water.

We had some other possibilities for errors, cases where releases may not actually reach their targets maybe because the substance has been attenuated or the direction of movement. So when the model suggested the model impacted, it would be situations where it actually did not occur. And this is essentially the same point.

Our key concern here, there are cases where we might be talking about releases that in and of themselves are below background level which might be a cause of notice, but they will never reach a level that would cause health concern. That is another possibility of error.

These are things that can be discussed as we go through the session.

Our purpose in going through these slides this morning is to let you know the things that we have been thinking about and come to understand independently. So if you have some similar concerns, we are all in this together on those concerns. Any new items that come up, we will talk about those as well.

I think we even met your schedule, Sam. We appreciate the opportunity to give you fellows a little background on what we did and why we did it.

Mr. GUSMAN. Thank you very much.

My suggestion is that we go off the record at this point.

OFF-THE-RECORD DISCUSSION

[Whereupon, there was an off-the-record discussion from 9:40 a.m. to 11:45 a.m.]

Mr. GUSMAN. The purpose of this next phase of our meeting is to create a discussion that summarizes some of the key points that have come out of the rather unstructured but very interesting off-the-record discussion.

For this purpose, we have asked several members of the group to participate in creating a record that summarizes the key points that have been made, Mr. Snyder, Mr. Nosenchuck, Mr. Mott, Mr. Kerrigan, and Ms. Greer.

Mr. Nosenchuck, would you start.

Mr. NOSENCHUCK. Thank you, Mr. Gusman.

OFF-THE-RECORD DISCUSSION ON SITE SELECTION

This morning we have been talking about a number of items on the requirements for the 400 list under the Superfund legislation; who chooses the sites, or what ways are sites chosen for entry into the Superfund system; who has the major responsibility for getting site information; are there sufficient incentives for various parties, public and private, to get more and better information.

STATE PROBLEMS

One of the real problems that the States in the Nation are faced with is the fact that they do not have sufficient resources and funds available to provide the information to EPA that is absolutely necessary to develop some sort of a coherent national ranking system of hazardous waste sites under the Superfund program. I submit that EPA has deliberately withheld funds needed by the States to develop State hazardous waste site inventories. Section 3012 of the Resource Conservation Recovery Act clearly authorizes to be appropriated the sum of $20 million to the States to carry out the very type of information that is needed to develop this national list of 400 hazardous waste sites. There has been no money whatsoever appropriated for this particular purpose.

PURPOSE OF THE LIST

What is the purpose of the list of the 400 when less than 200 sites, by EPA's own admission, are going to be addressed under the Superfund program?

EPA tells us some 150 to 170 sites, at best, are going to be handled. What is the actual purpose then of the list of 400 sites?

EPA says—and I am not disagreeing—that we have some positive and negative considerations. Some of the negative considerations: Many sites that will be listed will never be addressed; there is going to be a lot of concern because of this; people living around sites that are named are going to get very concerned and upset if nothing is going to be done to clean up that site.

In other cases, the mere listing of a site on the national list is going to induce some of the companies involved to arrive at some method of resolving the issue to get a particular hazardous waste site off the list. I agree that is a valid purpose of the list.

CONCERN WITH RANKING SYSTEM

My concern is in connection with those sites where nothing is going to be done because they are too far down in the national ranking system and money is not available to clean up the site. The money is in a finite fund. We are moving ahead very slowly and the value of the fund shrinks each year due to inflation. What is really going to happen at those sites that are on the list where nothing is going to be done in light of the limited Superfund program?

State readiness to proceed has been recognized as a critical and crucial factor in the whole rating system. If a State isn't ready to proceed at a site that the State has on the list, and the State is not coming up with the required 10-percent match, what, then, is the purpose of listing a site where nothing is going to happen anyway?

TYPE OF DATA AND COST OF ACQUIRING DATA

The question of data has been raised a number of times. What type of data is needed and what is the cost of acquiring this data? EPA told us this morning that they estimate the cost of data for their Mitre ranking system at about $2,500 per site. I submit that is a misstatement of the actual situation because, based on experience, we found the cost of developing the minimum data required for the Mitre ranking system runs somewhere in the $20,000 to $25,000 category and, in those cases where EPA wants additional data, there is an additional cost involved. In New York State we had to spend additional money at some of the sites to give EPA additional data last summer during the interim site-listing process.

How much data is really necessary, what do you do with the data that you might have that you cannot use, what is the purpose of the data? These are issues that must be addressed as part of the hazardous ranking system.

TOTAL NUMBER OF SITES

The question of how many true candidates for hazardous waste cleanup are out there in the country is a major issue. We have heard about many thousands of sites—11,000 sites. EPA has said that all of these sites are going to go through a funneling process and at the end of the funnel maybe 150 to 170 sites will be really addressed under the Superfund program. In the meantime, you are going to get a lot of people excited all over the country. For what end and to what purpose?

SCOPE OF HAZARDOUS WASTE SITE PROBLEM

We have to determine, I think, once and for all, what are the true limits of the hazardous waste site problem that we are faced with in this country, what really is the problem, and what is the purpose of Public Law 96–510?

The use of the term "superfund" is a misnomer because the $1.6 billion fund is not a superfund. A lot of this money will be used for administration by the Federal Government and not for cleanup. This really is a bad situation.

I submit that under the Superfund program there currently appears to be a glacial approach to the cleanup of hazardous waste sites rather than a true innovative and realistic and rational approach.

OTHER VIEWPOINTS ON RANKING SYSTEM

Mr. GUSMAN. You raised a number of issues. You mentioned State initiatives to get data that can be used as input for the ranking system, State readiness to proceed as a criterion in ranking, a number of different data issues, and you have also talked about the size of the overall problem.

Do any of the other members of the group want to address any of those issues other than the data issue? I would like to set the data issue aside for a moment because that will require separate discussion.

HAZARDOUS WASTE CONDITIONS ADDRESSED BY SUPERFUND

Mr. KERRIGAN. I would like to expand upon a point raised by Mr. Nosenchuck. There is a crying need to define the problem that must be solved. What, exactly, are the hazardous waste conditions being addressed by CERCLA? Are we to develop a broad-based approach that seeks to define the outermost limits of the problem, or are we to direct rifle shots into the critical problem areas so that expeditious controls can be implemented? To do the latter, it will be necessary to match the authority, or level of funding, with the responsibility to determine what types of waste conditions to clean up and to what level of control. The public will lose confidence in the entire waste management program if the description of the problem is greatly exaggerated, both in the number of sites and degree of contamination that requires special attention, and the resources allocated to control the exaggerated problems are limited.

The top 115 sites listed by EPA have received wide coverage in the news media. Publicity of this nature has both positive and negative aspects. The list calls the public's attention to some sites that are indeed candidates for remedial action. If the list accurately identifies critical sites and action is taken to control them, the publicity is positive. However, if there is a practical chance that a specific site can be handled by voluntary action by a responsible party, then early disclosure may lead to unnecessarily bad publicity and could delay remedial action. Furthermore, if a low-priority site is mistakenly listed, or the site cannot be controlled in a cost-effective manner, all of the negative aspects of premature publicity come into play. The worst result, of course, would be the credibility of the program being questioned.

CONSEQUENCES OF HAVING A SITE LISTED

Mr. MOTT. I would rather talk on data collection.

Mr. GUSMAN. Do you have any comments on any of these other issues, keeping the data collection one aside?

In a sense, what has been raised as an additional issue is the question of what do we expect to happen with the list of 400? What will be the consequences of having a site listed?

Mr. MOTT. The first one is immediately legal and nobody is free to do anything about it at this time, and that is the assertions they are going to be priority sites and EPA responses are going to—sites are going to be dictated by some formalized set of priorities. So that will happen.

The national contingency plan draft identifies, particularly for remedial action, the kind of longer term cleanup, such as ground water, recovery of ground water contaminants—I use that phrase instead of ground water cleanup—that only the sites on the list will be eligible for remedial action.

The practical significance is extreme in that sites that are on the list have constituencies that form around them that expect something to happen to that site. The best example is Tar Creek, where the State scored the site very low. The EPA contractor went out, jacked the score to be what is reputed the highest audited Mitre score in the country, and whamo, everybody is asking, why isn't Tar Creek being cleaned out before the State and EPA had even had an opportunity to decide whether it was a site that needed to be cleaned up. It was a question of the agency opening up a Pandora's box—the Mitre score got ahead of them.

The listing itself cannot be underrated. It is something that nobody can do anything about legally or practically and it argues very definitely that the criteria for listing are not throwaways, they are critical, they would largely decide what sites get addressed and what sites don't, what sites get public attention and what sites don't, and we should approach this with that thought in mind.

Mr. GUSMAN. Ms. Greer, do you have any additional comments on these issues?

COMPREHENSIVE LIST OF ALL SITES

Ms. GREER. Yes. In my opinion, even if the list lists sites which do not eventually receive remedial action, it is worthwhile to have a comprehensive list of bad sites.

First of all, the State can more easily keep the heat on responsible parties or EPA to get some money to clean up listed sites. If a State doesn't have a site on the list, they don't have the kind of political leverage to get that kind of money.

Second, since there has been, up to this moment, little criticism of the Mitre model's basic adequacy, if we, therefore, make the assumptions that the sites which end up on the list are basically worthy sites, that will focus the attention of the States to those sites and, therefore, the States will have a finite problem that they need to be addressing.

The third good thing about the list is that the public, therefore, can see what is getting done and see how many sites are getting cleaned up on the list.

And the fourth good thing for the list, States which might choose to ignore the sites, if a site is on the list, it will provide incentive for them to take more action that they otherwise might not take.

So, I want to put some good things about being on the list, even if it doesn't mean that you have the ability to clean that site up.

Mr. **Gusman.** Your comment is: There can be advantages to getting a site on the list, even if a State does not wish the site to be on the list. And my impression is that there is some controversy about that issue in this room.

Ms. **Greer.** Yes.

Mr. **Gusman.** Is there anyone who would like to talk to that particular issue?

INTERPRETATION OF SUPERFUND CONCERNING SITES

Mr. **Nosenchuck.** Under the Superfund legislation, our interpretation is that the State has the responsibility to place sites on the list. If the Federal Government puts a site on the list, I submit that the Federal Government has the immediate responsibility to clean up that site in totality and to take care of the total operation and maintenance cost of that site. The Federal Government has reversed themselves 180 degrees on the question of operation and maintenance costs. They say now that the State is responsible for O. & M. for infinity. Previously, the Federal Government was going to pay 90 percent of the O. & M. costs during the life of the Superfund program. I submit if the Federal Government unilaterally puts a site on the list, they are, therefore, responsible to handle that site for infinity.

Mr. **Gusman.** Mr. Snyder, do you have comments to make on these issues?

COST FOR ASSUMING DATA

Mr. **Snyder.** The only comment I want to make is that we agree with Norm that the average cost for assuming the the data is $20,000 to $25,000. The earlier comment of $2,500 Steve was using was simply illustrating the cost of one data element in trying to draw some marginal utility issue on that, but the average cost in developing data to input of the system as it now stands is the minimum $20,000 to $25,000.

Mr. **Gusman.** Could you comment on the question of the limits of the problem? There has been some discussion that many thousands of sites are outside the limit of the problem. Various numbers have been used. Can you add anything that would be helpful in that regard?

TOTAL NUMBER OF SITES

Mr. **Snyder.** I will make a couple of comments, Sam, based on things that we have in hand.

The results of the 103(c) notice under CERCLA, the inventory of sites as submitted by individual response in the law to tell us of the previous hazardous waste activity, there were 200 sites reported plus another 2,000 sites reported by the Department of Defense as properties that they had sold previously.

We have also on record approximately 10,000 sites that may include many of the previous 9,200 that I just mentioned. And this list was developed as a result of the inventories that States, EPA offices, and private groups submitted to the Agency.

It is difficult to take these two numbers and with any precision to say that is the inventory of hazardous waste activity, and at this time we are in no position to say that we have an inventory of hazardous waste problems.

We do have intention to screen and sort through a list of that size in some efficient way so at least there is some effort to determine what the nature of the activity or the problem may be at that site.

It is important to note that in the development work underway thus far for the national priorities listing, that the States have requested through our regional offices to nominate sites for the 400 list, and our goal is to obtain 800 to 1,000 nominees. And while we don't have a complete number, we think that number of sites will be nominated. And by the very process of nomination it will have been screened by the States.

Mr. GUSMAN. So your point is that the States' involvement occurs in the process of creating a somewhat larger list than will emerge ultimately as a result of your prioritization system.

Mr. SNYDER. The State input for the national priorities list starts, really, at day one in developing this basic list. You could also say that this list of 800 to 1,000 becomes the special focus of investigation work, but by no means is the limit of the investigation work and full survey work going on either by EPA or by the States.

SITE RANKING SYSTEM

Mr. GUSMAN. These issues came up in our off-the-record discussion within the context of the general question: What goes into the site ranking system? In addition, the sense that I got out of the group discussions was that it can be very important for people to understand why the site ranking is being done in the first place and what the consequences are if a site is placed on the list.

The issue that attracted the greatest attention, however, was the issue of data, including questions such as: How much data should be required in order to enter a ranking model? What should happen when there is not that amount of information at the outset? What do you do with additional information, beyond that required by the model, if you have the additional information? Is there any kind of prescreening that may be done with less data than is required to enter the Mitre model system?

CONCERNS WITH MITRE MODEL

I wonder, Mr. Mott, if you would start discussion of this subject.

Mr. MOTT. I think there is a consensus that the Mitre model requires what has been characterized as sort of bare bones data. Among other things, it is not even considered waste concentration. So any trace of hazardous waste constituent that was toxic and very persistent would have a high waste characteristic score. The example I have used is the Boston tapwater because the low level of organics would match the waste characteristic score. To my knowledge, this pitcher of water might match the characteristics score because there is some trace level of very persistent toxic waste compounds in that water.

So, it is obvious for that reason and for the fact that things like persistence of compounds volatile organics, all these specific facts would be absolutely critical for risk assessment to determine how serious a site really is. They are not included in the Mitre model. So, it is bare bones.

Now the question is—and again there is no controversy here—that some fairly high additional level of data is necessary besides the information provided in the Mitre to determine which sites really are going to be cleaned up, whether by litigation or by administrative funded cleanup. That is a given.

Now, since that is a given, the question is: How do you incorporate that additional data into your priority system? You got a list that is derived on a bare-bones fashion that leaves out many of the more important variables. Leaving aside the fact that we are more than a year into this program—and I don't have any hope that Mitre can be changed to get concentration and some of these other important issues—what has to come into play, as a practical additional matter has to be structured to take these factors into account.

It is structured, as a matter of fact. That is a reality. The question is not whether it will be. It is structured now on a subjective ad hoc basis. That, I think, is in large measure part of the frustration, particularly in Congress, media and the public, about why things aren't being answered. The answer: If a site is identified as one of the worst 115 in the country, what is the public perception going to be? There are going to be more studies. They don't know that more studies are needed to decide whether these are the worst 115.

INCORPORATION OF ADDITIONAL DATA

So, my suggestion is—and I believe it has been shared by several participants—there ought to be a way right into the Mitre system to provide an optional corresponding system and the nature of that and what factors that would take into account we will leave aside. But there ought to be a system to incorporate additional data and it be done in arbitrary quantities, additional values ought to be arbitrarily quantified and numbers put in.

The advantages of that would be, there would be incentives to collect additional data. If you wanted a site to be higher or you wanted a site to be lower on the list and you knew that additional data was available or it could be collected in readily achievable timeframe and you do this, this could effect how the site was ranked. A State like New York, if it had sites it wanted to go on, it might have more data than the Mitre had available to push those sites higher on the list by supplying that data. A client of mine—which occurs in more than one case—says that if there are sites, including some that might be in States represented at the table here, which shouldn't be on the list, they could provide data to that effect and it will be incorporated into a system in a flat objective way that everybody understood.

ANNUAL REVISION OF LIST

The next point is that the list will be revised annually. One of the most troublesome issues: What happens to the 115 when the 400 is put together if the basis for selecting the 400 is different from the basis of selecting the 115? What happens annually when the 400 turns over? If it was a standardized way that would make the annual revision process an orderly one in which people can predict the kinds of data matrixes and variables, that would change the list.

The other point is, by allowing the data to be optional, you avoid the high threshold requirement. The agencies' general concern is that every data point costs you money, but making it an optional basis, you are allowing to integrate that in case-by-case basis and you put incentives on other people, not the agency, to pay that money.

The last point: It provides a nonpolitical way to revise the list. And I am concerned that the list itself is a more political and media event than it is a regulatory event. I think it behooves everybody in the public interest to greater quantify this-is-the-way-we-do-it kind of approach to revising the list than to leave it entirely to the unstructured pressures that are coming to bear in the status quo.

Mr. GUSMAN. Are there comments by other members of this session's panel on the data issue?

STRUCTURE OF THE MITRE MODEL

Mr. KERRIGAN. I would like to question the basic structure of the Mitre model. As structured, the model assumes that all of the pollution passes by means of one or all of the pathways directly to a target population. The transfer is assumed to be 100 percent complete. This is an unrealistic assumption. The site-specific and waste-specific characteristic of each prospective site subject to control must be considered. The rate of movement and the concentration of pollutants are important facts in evaluating the degree of contamination. As presented, the Mitre model does not take into account the attenuation or destruction of the pollutant that might move through the pathway.

Mr. GUSMAN. Are there comments from the other members of the panel?

Ms. GREER. I would like to agree with Randy that we would like to see the model be able to incorporate better data where it's available. And we agree that such flexibility would provide an incentive to get some much needed data. Further, I agree that it is in the best public interest that the data be incorporated in an objective manner which out-lines how information gets in and how information gets out. The list should be revolving on the basis of better data.

I would like to emphasize that, in my opinion, however, it may not be beneficial to belabor the data issue because in my perception the real problem is not one of incomplete data but of actually getting any of the sites cleaned up.

For many sites we have enough data to know what we need to do and we should start doing it.

INADEQUATE DATA AND SCREENING OF DATA

Mr. GUSMAN. One of the issues raised in our off-the-record discussions had to do with the question of what happens if there are not adequate data to enter the Mitre model and a subset of that, is there some kind of screening that might be done with the lesser amount of data?

Would any of the members of the panel like to comment?

Mr. MOTT. I think, as a practical matter, that they are screening already. I think Mr. Snyder's comments indicated there was already screening at EPA and this morning the EPA flow chart showed the screening process. The States obviously screen to determine what candidates they are even going to incur this data burden on.

The comment I make—it might be useful, it is probably overoptimistic—there could be some sort of screening criteria that might also be acceptable to EPA and the States to begin with and, assuming they can work anything out, I imagine the private industry and the public might want to know. That may be just as important in the long run as the Mitre system itself, and it might be useful to make that a published vehicle whereby everybody knows pretty much what the rules are which no one knows now.

DISTINCTION BETWEEN RANKING SYSTEM AND DEVELOPING MANAGING PLAN FOR NATIONAL PRIORITY LIST

Mr. SNYDER. I would like to comment on a couple of areas. One, I think it is important to think that hazardous ranking system, which is the real name for what we are talking about, we are not giving commercial to the Mitre, that you need to keep in your mind the distinction between the hazardous ranking system and what, essentially, is a managing plan for implementing the development of a national priorities list.

If you will recall from our presentation this morning, we really broke it up in the way we did with some deliberateness. What Steve Caldwell presented was how the hazardous ranking business works. The brief presentation said this is how we develop within our priorities list. The question of quality assurance, how we verify whether a site scores good or not good, how we handle States' top priority site issues, are really management decisions and part of the management system that is actually used to develop the national priorities list, how we bring all of the pieces into play.

So, one should try to keep some distinction. They are both very important but let's not mix them up as we talk about how we get from here to there.

CONSIDERATION OF ADDITIONAL DATA

On the issue how to consider more data, you want to discuss that briefly in light of a management system somewhat separate from the hazardous ranking system.

There are adequate incentives right now for anyone to go and obtain more data on the sites that they are interested in, whether that is a State going out to look at sites to better understand the nature of the problem or whether that is for input into the national priorities list or whether that is more characteristic of the problem and for the citizenry the incentive is there.

INVOLVEMENT OF PRIVATE SECTOR

My comment is more specifically directed to the private sector. There are all kinds of incentives to go out and develop good data so that they know whether or not a problem exists at the facility they may own. And if they determine such a problem exists, better understanding that problem so they can move forward to some corrective measure.

That incentive should be there regardless of what the time data may be for developing or revising or any other action under the national priorities list.

SCREENING CRITERIA

The issue of screening criteria; while we think we have involved a fairly effective process somewhat ad hoc, perhaps, by asking the States to nominate, you are, in effect, relying on the judgment of the States and their knowledge of things that are occurring in the State. While there may be some benefit in giving some of the criteria that may be used, I think it would be in error to make that criteria too rigid because then you would take away the judgment that State officials have. The flaws that may exist in the current hazardous ranking system or any future hazard ranking system may totally eliminate can never be totally objective and totally quantifiable with the kinds of problems that can come from hazardous waste sites.

So, you have to allow some element of judgment. That judgment should happen at the time you nominate sites and it should happen at the time you determine the corrective course of action.

We would like, to the extent possible, to keep the system itself objective so you are not making a lot of intermediate steps.

I think that is all my comment now.

Mr. GUSMAN. Let's now spend some time getting comments from other members of the group. Bill Wallace.

FORMAT FOR SITE SELECTION

Mr. WALLACE. What I think we need to do, to try to do something in 2 days which we said at the beginning is going to be tough, is to try to cite a solution format for this. I have been trying to sum up what I think is going on in listening to everybody and putting something together that looks like a problem solution.

You used Russ Wyer's Superfund management plan which lays out a flow chart that starts from the screening process where from that universal potential site you start distilling down and end up with things you are going to take action on. We also have seen four, or possibly more, different entities here, all which are concerned about different things. The way you get this to work is through the multiplicity of independent situations here where everyone is seeing their concerns met in all phases of this thing, starting out with the screening phase where you take sides in this universe and whether they, in fact, prior to being ranked in the first place, go through some ranking to finally decide, yes, something ought to take place, and finally does it get put on the list.

The States and EPA—I think we are all trying to do the same job, but coming at it from different angles with EPA having most of the dollars. They are looking to find the best effort for the dollars they can spend, and part of that is putting some system where you get most reduction of risk for the dollar that you spent. They can do this either by spending on their own sites, inducing people to do the right thing in their own sites that they are responsible for by the public attention.

Congress and the public have an oversight role which, I think, has been expressed very well in the introductory materials that were sent around to us where they don't want to see a situation where there are sites out there that have not been ranked and they don't want sites that are ranked not to deserve being on that ranking list.

We need to assess those concerns.

I think by doing this step by step—looking at the screening process, the assessment that model makes, and how that goes from the model ranking to the actual list—and taking each one of these separately to see what the separate set of objectives are which have been placed in no particular order here should be done in order to assimilate all of this information and to derive a consensus that tells us what the concerns in each step. Can we marry all of these concerns together and then proceed on some kind of solution path?

I think we set the tone for coming up with some valid conclusions at the end of this two-day session.

Mr. GUSMAN. Thank you.

IDENTIFICATION OF ISSUES

To repeat what I said earlier in the day, I hope we will be able to achieve an identification of the issues that this group feels are important, and then an identification of some of the diverse points of view of these key issues. And we have started in that path. If consensus emerges, that is fine, but if it does not and what we have are divergent points of view, then the important thing is to have these views expressed.

Karl Birns, you wanted to make a comment.

Mr. BIRNS. I have been listening to much of the conversation this morning and what I would like to do is propose something that might solve most of the issues to be considered here; a solution rather than more questions. I think the first thing is that we have a consensus that the congressional intent is to clean up sites. Starting with that basis and recognizing that the ranking system is not the end but rather the means to an end, I would propose the following: The Mitre model stay as it is, that the information available for the Mitre model, whatever is out there currently existing, be left as is. That EPA would set up the ground rules for getting this information. At this point in time, they would create what I call a short form; the Mitre form would have a short form and a long form, which would pick up any additional data. The information could be supplied by the industry concerned, it could be supplied if the State has ongoing investigations and the ability to get additional data they could input at this point.

This information for the long or short form of the Mitre model would be based on a problem site. It would not be facility-specific; it would be site-specific because, in many cases, we have a site problem but we don't have a fined facility to relate to the site.

Once you evaluate the sites, what you are looking at is to develop a list based on site hazard. That is all it is, it is hazard list; it is not an action list.

Now you get to the point you have this list of hazard sites using the short form which gives you a relative priority of hazards of available information in hazard.

At this point, another set of ground rules comes into play which starts looking at that long form. If the long form was initially submitted, you can now start using that to start looking for such things as information of the proper quality, is there a deep pocket to go after, what are the legal issues involved at the site, is there need for immediate action now as opposed to further studies, is the State involved prepared to go, do they have the resources.

Now, this criteria should be independent of EPA discretion, which I think is one of the problems right now because this criteria would be used to break the list down further into two categories or, if you would like to say three subscripts on the ranking, so you can be ranked No. 1 in terms of hazard, but after it is evaluated there would be a listing with regard to whether or not the site should now go back for further investigation to fill out the long form. In other words, we got information showing it is bad, but it is not enough information because the information may be sketchy; it is superficial.

Mr. GUSMAN. Are you proposing at this point a modification of the Mitre model or talking about the data that go into a ranking system?

USE OF INFORMATION ON SITES

Mr. BIRNS. What I am saying, the consensus here is not that there is a problem with the Mitre model, but rather the problem is how that information is being used and how to get additional information, because the real problems we see are not in the model but in the list.

SYSTEM PROBLEMS VERSUS MODEL PROBLEMS

I think almost all the issues we have seen here address the list rather than the model. If we do this type of system with the second evaluation to determine whether or not we go back to additional investigation, enforcement or immediate action, it solves Norm's concerns. For example, if the State has funds available at this point in their review, then it would be an immediate action which would not require going back to get information. Go ahead with the cleanup; don't sit on it anymore.

If the State doesn't have sufficient information or the industry involved feels there is more information they want to bring into the system, now it is the time for it to be brought in. Maybe that site would be not determined for immediate action. It would go back for information and enforcement.

I think it is the system that is the problem, not the Mitre form.

INFORMATION FOR THE RECORD

Mr. GUSMAN. Joel Hirschhorn wanted to make a comment.

Before you do, let me make one point. In building this record, there is no need to reiterate points that have been made by another speaker. Let's add additional points to the ones that have already been made, or introduce a different perspective.

PROBLEMS WITH ORIGINAL SCREENING OF SITES

Mr. HIRSCHHORN. It seems to me, in listening a lot to what has been going on, that the Mitre model seems to have a potential for remaining and serving a middle role. But I feel very strongly that what I am hearing is a problem with the original screening. A real problem with insufficient guidelines and criteria on two sides of the initial screening—that is, what the States need to know to make nominations—and then for public disclosure on what EPA is doing with regard to selecting out of the nominations those sites that go into a more formalistic review and assessment.

As an example of that inadequacy, it would seem to me that, again, State preparedness was an example of a factor that didn't quite get into the whole system of initial screening in the appropriate way.

I also feel that somehow there is something missing at the back end of the process after the Mitre model and I am not sure what that is, but I would like to hear more from other people about the whole system's approach. Maybe that is something we can get to more at the end of the 2 days.

DIALOG BETWEEN EPA AND STATES

The point I would like to make, I don't think there has been enough dialog between EPA and the States on this whole process of nominating sites and the whole interaction here between EPA and the States, what goes into the system and then what is thrown back to the States with regard to action. I get a real sense that there has not been enough talking between the States and EPA.

Another point I would like to make concerning the problem of putting sites into the system is that we can get a false negative. I am not so worried about what we see finally coming out on the list. The argument, I agree, is that they all look bad. But I am real worried about the fact there may be very bad sites out there that are not making it into the system and are not making it to the list at all. It is the absence of a very bad site that I feel troubled about.

Another point is that there has been a fundamental error and misconception about the role of Superfund and the role of the priorities list. What has happened is that EPA has not made it clear enough that the list and Superfund is only one of several ways to deal with abandoned hazardous waste sites in the United States. And, therefore, there is this problem that people think of any list as being the worst sites in the country. And I think that is just misleading everyone, particularly the public.

FLEXIBILITY CONCERNING DATA INPUT

Last, I want to echo the need for more flexibility with regard to getting data into the system, as Mr. Mott has stated. I think that flexibility does not exist now. I don't have a feeling there is sufficient flexibility particularly from the States' perspective.

Mr. GUSMAN. Mr. DeVille.

PROCEDURES FOR LISTING SITES

Mr. DEVILLE. I would like to add a little to what was just said by Joel. In the informal discussion I mentioned that I think some of the other States did that. In Louisiana we had little, if any, political pressure on us, such as, we should have listed some sites that we did not list, or that we should not have listed some sites that we did list.

I am going to defer some of my overall concerns about this issue to the specific sessions on data and on scientific approaches to something like this quantification of risk.

But the management approach we took—the technical basis of the approach in applying the data on hand to the model—was very much like the approach we would take to looking at a permit application. And so, I want to say that for all the scores we used, we tried to make them as accurate as possible, as though we were going to permit that site; and we would use that same approach if we were to close that site. We would try, in closing out the site, to bring that score down essentially to zero, based on the approach we used in filling in the data.

One of the things that we were hit with by some sections in the State was that we should have lied; we should have exaggerated the nature of the problem at each of the sites so that we could get them very high on the list and get Superfund moneys.

But we felt we should stay as technically precise in relation to the data we had as possible. I think that EPA has a responsibility on quality assurance and they have been fulfilling that responsibility admirably, I believe—for trying to assure comparability in plugging in the data to the model.

Mr. GUSMAN. Robert Kissell.

SIZE OF HAZARDOUS WASTE SITES

Mr. KISSELL. I hope my notes here follow some train of thought.

One of the things that I have in mind is, I really wonder how big the hazardous waste sites, abandoned or otherwise, cleanup program really is. We heard a lot of talk about it is bigger than the $1.6 billion fund and it is not a Superfund, but I throw it on the table.

I wonder if after all the responsible parties have been involved, voluntarily or otherwise, and assuming—I think we have to—that Superfund moneys and responsible party moneys would have been spent reasonably cost effective, if when all of this program is over, if we have a demonstrative problem remaining. I don't know; I just pose that because that partly leads into my next several points.

COST EFFECTIVENESS OF SYSTEM

The system has to be cost effective. The expenditure of the funds has to be associated with problem sites.

The problem, I suspect, is not so grave at the front end whether there is a model or not, a consensus agreement that we caught some bad sites and money ought to be spent. Maybe the problem is going to occur in 2 or 3 years when we are down to the margin and we really want to make distinction between those sites that have 20 and 19 as a ranking. I don't know. But, it seems to me that if this process proceeds with some greater speed than it has proceeded so far, we may find ourselves down the road with having to make tough decisions on whether a site really is a problem or not a problem.

I am going to endorse the idea and the need for flexibility. I think that is extremely important and it is going to be especially important further down the road.

POLITICAL ASPECTS OF SITE SELECTIONS

I want to make a comment on the political aspects of naming a site and the question as to whether readiness is really a key issue.

It seems to me it is a key issue. But if I were the State of Florida and I put 15 sites on the list and come a year later not a stich had been done at those 15 sites, it seems to me I would expect that my constituents in the State of Florida would have some kind of public outcry.

Is it not possible that in the first go-around, States were, perhaps, misinformed or misguided in putting a bunch of things on the list. In fact, since they are totally ill-prepared and nothing happens, they are going to be a little smarter the next go-around?

Obviously, there is going to be some embarrassment down the line if there is no action taken on an individual site.

COLLECTING DATA

To rebut Hal Snyder's comment—and this is my last point—that there is an incentive for collecting data to get cost-effective remedy and that incentive to collect data is inherent in the process, I will agree with that. But the incentive for collecting good data is merely for cost-effective remedy at this point; it is not to get an inappropriately ranked site off the list. That only comes after you have been screwed on to the list and you are smeared all over the New York Times. Then you go back and try and fight it off. And the discussion from a number of people here, before you get on the list, the feedback system ought to be instituted.

Thank you.

Mr. GUSMAN. You are clear in endorsing the concept of developing some way to get additional information into the system?

Mr. KISSELL. Absolutely.

Mr. GUSMAN. David Lincoln wanted to comment.

THE USE OF CURRENT INFORMATION TO ADDRESS SUPERFUND ISSUES

Dr. LINCOLN. I have heard six issues today: One, need to determine what the question was to be addressed in this site ranking model; two, management processes that utilize information; three, possibly a division of the decision into different phases coming out of the Karl Birns suggestion; four, quantity of data to use; five, possibly the use of screening procedures; and six, mechanism by which good decisionmaking tools might be realized; that is, how can you determine whether or not a good decisionmaking tool is in use.

The point I wanted briefly to get across at this time is to follow up on the issue I raised today, and that is to look at the question of analogies. These six issues that I raised are not unique to the hazardous waste area or in what to do about existing hazardous waste sites. Analogies might exist, and I believe do exist, in the area of toxic substances regulation where there are again thousands of chemicals in that case to deal with.

Screening tools also have been used for evaluating the impact of large-scale technologies.

So, the bottom line that I wanted to suggest at this time is the problem being addressed today, or over the next 2 days, is not unique and that there are precedents available where people have attempted to work these problems. The experience in these attempts could be useful in trying to make decisions, for instance, on how much data are necessary.

There are ways of formally addressing that question.The issue is whether or not it makes a difference in terms of the decision you are trying to make.

Mr. GUSMAN. We have time for a few more comments.

Reva Rubenstein.

ACCESSIBILITY OF INFORMATION

Ms. RUBENSTEIN. I wanted to underscore what Mr. Kissell said that there is really a need to be informed of what is going to be on a public list before it becomes public. That would certainly be an important incentive for the private sector to get moving and submit the data necessary to prevent being listed. There is an incentive to correct a situation and to stop unfair publicity.

My second comment has to do with something that Mr. Mott said before. I have no objection to a revised list annually, but there has been a tendency in the past to have a list of so many and whatever you don't get around to gets put back on the list the following year and then the following year and it seems to be a forever list. There is a lot of excess baggage that keeps being put on these lists annually. Although I like the idea of a constantly improved upon list, there must be a way of putting a beginning, a middle, and an end to it.

Mr. GUSMAN. Let's have two last comments from Dan McGrade and Bill DeVille.

MONEYS FOR SUPERFUND

Mr. MCGRADE. I have two quick points to make. One is on the issue that we only briefly discussed, which is defining the scope of the problem, because that will determine what we might be able to do. At this time, I think it is premature to make a statement that the $1.6 billion fund is not sufficient. We have heard earlier statements that early in the Superfund debate it was estimated that 50,000 sites needed attention and now the number is 11,000. Of those 11,000, I don't know which might be the problem sites. However, we heard that of the 115 interim priority sites there are 65 for which responsible parties are expected to pay substantial moneys in the cleanup and the fund is not going to be heavily impacted on those.

Before we start saying that the fund is not sufficient, we ought to define the scope of the problem.

DATA ACQUISITION

The other item is on the data acquisition. I think the Mitre model serves as a good first step. I think that during the comment period that the model can be modified to allow some flexibility for additional information to be input to the model. I think that the process of using the States to screen the sites on the first round is not good, but I think that later on we will need a formalized screening process that can be used by all States to assure consistency. In addition, there should be a mechanism for getting the sites either moved up on a list, moved down on the list, moved off the list, and a program for continuing to look at those sites that have not yet been listed.

Mr. DEVILLE. I want to make this observation: What we have not discussed is one of the elements of the Mitre model that leads us, in essence, to act as though we are playing triage in a peculiar situation, with resources that are not sufficient to deal with all of the bad problems we may identify. That is, the model is addressing quantitatively the greatest potential public health effects on the greatest potential number of people.

LOUISIANA VIEW

I want, simply, to make the final conclusion from our point of view in Louisiana, that if we have listed a site with a score of 20, we consider that an absolutely unacceptable hazardous waste management situation that has a high priority, from our perspective, for being addressed. And we feel obligated to move on that site, whether it makes the list of 400 or not. So we still have a mistake in the past to deal with, even though it may not affect a large number of people.

Mr. GUSMAN. Thank you.

CONCLUSION OF MORNING SESSION

Let me make an observation on this morning's session in bringing it to a conclusion. The topic that we had intended to discuss this morning is, What goes into a site ranking system, what data, on what sites, who gets the data, before proceeding to a more explicit discussion of the Mitre model this afternoon and then to some more general questions tomorrow.

Only some of our discussion has focused on the data that go into the site ranking system. It seems to me this says something; that is, that the greater concerns of this group are for what the ranking system is, what the scope of the problem is, what is going to happen as a consequence of the use of the system. These issues will continue, undoubtedly, to come to the fore throughout the remaining day and a half.

We did give thought to two very important kinds of issues related to what goes into the system. One is a group of issues related to the nature of the data and go in, the amount of the data in particular. Second are a couple of issues related to the ways in which the States become involved at the input end of the system.

Of course, there were other issues that were also discussed, but I think these two deserve special highlighting because there were a variety of points that might be more in the direction of being actionable and lead to consideration of the ways in which the data input system might be reevaluated and considered.

WORKSHOP RECESS

That ends this morning's session.

[Whereupon, at 12:45 p.m., the workshop was recessed, to reconvene at 4:20 p.m. the same day.]

(AFTERNOON SESSION, 4:20 P.M., FRIDAY, MARCH 19, 1982)

SUPERFUND WORKSHOP

FORMAT FOR AFTERNOON SESSION

Mr. GUSMAN [presiding]. This afternoon's session deals with the use of the Mitre model or modifications of it to create lists of priority sites.

Our informal discussion covered a number of topics and we have, again, a panel that has been selected to summarize for us the informal discussions that have been heard over the last few hours. The panel consists of Mr. Snyder, Mr. Kissell, Mr. Hirschhorn, Mr. Schroeder, and Ms. Greer.

As was the case this morning, the charge to the panel—that is, to summarize our discussions—is literally to do just that: to summarize the discussions rather than to use this period of time for discussion of their own particular points of view. In addition, after the summary we will have an additional half-hour session for individual comments and the panel members are free to participate in that.

With that introduction, let me turn to Bob Kissell to start the panel discussion.

Mr. KISSELL. I recall we were going to go on record as saying that our summary comments reflect group.

Mr. GUSMAN. Yes.

GENERAL USE OF MITRE MODEL

Mr. KISSELL. The sense of this discussion this afternoon seemed to me to be the Mitre model may represent a reasonable tool to characterize sites in general. However, readily we came up with specific situations where the Mitre model may not be appropriate to recognize situations and that an opportunity ought to exist whereby the ranking given a site could be adjusted, or in other words, an alternative calculation undertaken.

And I noted at least five areas where alternative calculations may be appropriate. Those include: waste quantity, toxicity, observed release, population, and degree of attenuation.

I won't go into details on those.

VALIDATION OF THE MODEL

A second area regarded the need for validation of the model or need for validation of the site prioritization list.

The Agency, I believe, suggested that the priorities list will be proposed; there will be a comment period and that the opportunities for making adjustments to the model might best be postponed until that proposal comment finalization process.

During the discussion of all the pros and cons of adjustments to the model, I believe there was a fair consensus that, however it was accomplished, some guidance was needed to what represented an acceptable input into the modification.

I have some miscellaneous things now. Regarding validation, there are two needs for validation: One, to determine whether the users of the model provide consistent answers; and two, to determine whether the model accurately reflects some measure of risk or impact.

The former may be improved by field testing or other procedures or improvements in the instructions; the latter may take years to accomplish.

MEASURE OF POPULATION

There was some concern about the measure of population. I don't believe there was a consensus as to what might represent the best set of population numbers to be used was, but there was a recognition that population values assume that all of the other parts of the model fairly treat risk and/or impact.

Regarding remote sites where relatively few people are involved, there appear to be legal mechanisms to provide remedy for the smaller populations.

That is it.

Mr. GUSMAN. Let me suggest that we divide the discussion into three parts and deal first with the issue of flexibility, second with the specific questions related to population, and third, with the validation issues.

Let me ask the other members of this session's panel if they would add their comments on the flexibility issues that Bob Kissell started to describe.

Joel Hirschhorn.

MODEL FLEXIBILITY

Mr. HIRSCHHORN. On flexibility, my feeling was there was a pretty strong consensus, certainly not total here, that one way to improve the flexibility would be to introduce some objective basis for alternative calculations. I think there was a pretty good case given dealing with specifics, particularly with regard to waste quantity and concentration that really justify the need for the use of optional, alternative calculations which would give States and private interests the opportunity to use the Mitre model, essentially use the structure of the model, but somehow come out with numbers that better reflect the unique circumstances of individual sites.

I sense some opposition to the introduction of alternative calculations on the part of EPA, and it seemed to me they were proposing to use the Mitre model as it is, come up with results and then let the public or whatever the interests are out there try and change those results in some way.

But that also requires an objective basis for guidance. I think it comes down to an institutional or bureaucratic kind of preference and I don't think we dealt with the relative efficiencies of these two. But I think the chairman well noted that it is not an either/or situation. Conceivably there could be the introduction of alternative calculations as well as putting the results of that in combination with the Mitre model up for public scrutiny and adjustment, putting sites on or off the list.

Mr. GUSMAN. Just for clarity, when you say "an alternative calculation," I assume what you mean is that, for example, there be the opportunity to use some alternative calculation procedure to introduce a factor that is not taken into account by the model, such as concentration, but that there be no requirement that the alternative calculation be used.

Mr. HIRSCHHORN. To me it is optional and it is available to any interested party which feels that the Mitre model used without that kind of adjustment does not present an accurate picture of the actual level of hazard or risk of that particular site. It would not be a mandatory requirement, but presents an opportunity, with flexibility, for the entire society.

Mr. GUSMAN. Are there comments on this matter of flexibility by other panel members?

Mr. SNYDER. On the issue of flexibility, it seems to me that you have to have some kind of a forum for when this alternate would occur. On the one hand, it could occur because the State may possess data or EPA may possess data that would better define the circumstances at the site. But, in those cases there is probably sufficient discretion available to the two agencies working together to decide: Yes, by God, the site should be there. Or, No, by God, it shouldn't be there.

INTERVENTION BY OUTSIDE PARTY

What the alternate issue really seems to focus is an outside party coming forth and wanting to have this process occur. It certainly could occur today outside of the hazard ranking system, that someone went to a State agency or EPA today and said that their site—which I will say for discussion is not on any list at this point—they want EPA and the State to be aware that this particular site which someone may have observed exists is not a problem and delineate all the reasons why, and if that agency agrees as the two agencies agree, then it would probably never be on the list.

If the process is already underway, then you have to have, it seems to me, some timeframe when somebody would come in with their data, whether, frankly, there is an alternate model to apply it to or whether it is strictly a narrative and you sit around the table in discussion, create some problems in developing the list if you are going to have your boss announce it on Thursday and 50 negotiations happen on Wednesday, it is a little shaky, it is almost like getting in the city newspaper when you finally rip off the sheet and say what it is we are going to press. So you really set up almost a continuous process here.

So this suggests that you need some defined period when it would occur.

The suggestion that I made in discussion, whether we would have some public meetings, some public hearing, whether at State level or

Federal level, to give individuals an opportunity to come in and present such information.

A number of comments were made that it should be a defined time period so we didn't go on an infinitum, a specific window be provided for this extra information.

While the proposal that I put forth is something to consider—and certainly this was not a proposal that EPA is formally making, it was oriented more to somewhat narrative presentation although some criteria could conceivably be provided.

ALTERNATIVE SYSTEMS

We have reservations about developing specific alternate systems for a lot more data, particularly waste concentration, because it tends to move you into the criteria base such that you can make precise judgments about various concentrations. It may involve substances where there are no existing standards or the standards that do exist do not necessary apply to the circumstances or the pathways or media that may be affected by the substance. So the desire to have an alternate system may have to be balanced against the reality of being able to provide the science and criteria for all this extra and sophisticated data. That suggests a narrative or case-by-case process may be over the realistic one where it is a process of bringing in extra data demonstrates a more precise understanding of the site.

That is my comment on flexibility.

Mr. GUSMAN. Let's stay with the flexibility issue for a while.

DIFFICULTY WITH ALTERNATIVE CALCULATION

Mr. KISSELL. I want to go back to Harold's comments about the difficulty of an alternative calculation wherein an alternative calculation might get into the decisionmaking process regarding criteria.

I will draw an example. If I have a site which contains 1 percent no-no material and 99 percent of fly ash of which the total quantity is 20,000 tons, I would submit that it may be more appropriate to input the model with 200 tons of no-no material rather than 20,000 tons of total material, and in going through that I have never made a value judgment as to standards or criteria.

Some of the impetus for flexibility are, I believe, around the table we would all agree that models are imperfect. They are intended to address the bulk of situations, but there are percentages depending upon the quality of the model greater or less where the model just plain doesn't fit.

One of the points—and I will try and summarize other comments that were made around the table. Other points are, it would be preferential if you could introduce alternatives or adjustments to the model before the proposal, because once the cat is out of the bag it is very difficult to remove a site once it has already been proposed.

Two, the Mitre model should, or any site ranking model should, be rating what sites are doing rather than merely represent an inventory of a bunch of sites.

Three, the adjustment process, I will agree, should not delay the process of clean up.

Mr. GUSMAN. Are there comments by other members on this same subject?

Ms. GREER. I would like to stress that there was a great deal of concern that any efforts to make the system more flexible would make it more slow and would also, somehow, impact the list that we already have and put our priorities back up in the air. The States and the majority of the people at the table agree that such an impact would not be a good thing.

A lot of the flexibility issues discussed were, therefore, discussed in terms of making the system more flexible where it would not impede the progress we have made or the progress we may continue to make.

Mr. GUSMAN. Mr. Schroeder.

Mr. SCHROEDER. I think there were many suggestions which really do justify some response from EPA for considering in the model evaluation and, therefore, do influence the flexibility of use of model. A judgment has to be used, and that was a comment we heard all the way through in using it because no mode is perfect. And we saw that in the attempt of validating the model when two different groups went out and rated sites and came up with different answers.

TECHNICAL AND MANAGEMENT COMPONENT OF THE SYSTEM

Mr. SNYDER. On the issue of flexibility, it is important to keep in mind that there are two major components for developing the national priorities list: One is the technical component of whatever ranking system we use and one is the management component which sets forth a variety of steps and considerations that we and States together do.

So when you talk about the notion of other considerations or other factors, you need to keep in mind whether you are addressing the change from the model or whether you want the process. An example would be talking about the nomination process or quality control process or some final decisionmaking process that, for example, the Administrator of EPA might have prior to the listing made public.

So your comments about some changes—you can balance where you think you want them—that has a direct bearing on the complexity involved in producing the desired effect.

One more comment I want to make, I think generally, direct to the issue of flexibility is that considering the point of potential delay in getting on with the processing of developing the national priorities list, that any dramatic change that one makes in factors does require some form of validation in order to know that we created or adopted something better.

That also implies—I don't mean by this comment that we, therefore, decided we are inflexible, but as one considers a change or as one proposes a change, it is very helpful to be able to give us the views that might help us assess how valid the change might be when it is applied broadly so we don't have to relive a lot of experience that we have already gone through.

So, unfortunately, that is certain endorsement of the status quo without trying to sound rigid.

Mr. HIRSCHHORN. I have been thinking, we keep using the word "flexibility." The reason why we want the flexiblity is that the Mitre model or any such device is based on assumptions and simplifications which have now led to a loss of accuracy and scientific correctness. There is something wrong with the results of the Mitre model. We want the flexibility, we want to institutionalize a correct mechanism to make the use of that abstraction more correct. And I think we lost sight of that. That is why we want it.

Mr. GUSMAN. Let's try to bring this discussion of flexibility to a close with just one more comment.

OPPORTUNITY TO CORRECT MODEL

Mr. KISSELL. In my own view, I don't have a lot of problem with the Mitre model. I merely think that individuals ought to have an opportunity if they see a misfit to correct it. I don't think that the Mitre model, personally, is all that bad. In fact, I would even go so far as to say it might be pretty darn good. We won't know for a number of years whether it really was good, but I would disagree wholeheartedly with Joel that any other approach is going to come out better, because it already exists. The Mitre model focus, at least in theory, identifies the problem components or the components that make up a problem site, and it costs a bundle of money to get those components addressed or to collect data to do that. And if you start going out to systematically change the model to address the universe, then you don't have anything.

So, flexibility is the opportunity to, without structuring the entire model, reflect the real world conditions. That is my personal thought.

Mr. GUSMAN. I think we have heard various sides of this issue. Reflected in this discussion and also reflected in the earlier informal discussion, was the sense of balance in this whole area. There did not seem to be, by virtue of request for flexibility, any necessary implication of a request for abandonment of the model. It was rather, throughout, and by essentially everyone, an attempt to make the model more relevant to some of the situations which they perceive that it is at present, not as relevant as they would like.

Could we turn now to the next issue, population factors.

Who would like to start with a comment on that?

POPULATION FACTORS

Mr. HIRSCHHORN. I thought that I heard a number of comments which again dealt with the substance of the issue. With the way population has been introduced into the Mitre model, there are some possibilities of, perhaps, overestimating the hazard as well as underestimating the hazard. Examples were given of the food chain effect which were not adequately taken into account because of looking at the population within a particular radius of a site. I think it was also pointed out that the public doesn't accept very well the use of a population density within a particular radius because of the perceived bias against low-population areas near sites.

I think there was also a point made—I made it—that it is very easy to get both false positive as well as false negative results. Another point I thought was quite valid was the absence of those factors which would have to be measured and dealt with which determine the actual exposure and are, of course, expensive data to get. I also heard that EPA still feels—and I think other people here probably still feel—that using the population density within a particular radius of the site is a valid measure of trying to take exposure into account. So I didn't sense total consensus here, but certainly some concern about the use of population density within a radius.

Mr. GUSMAN. Certainly there were separate questions asked. First, what the radius should be ideally, and second, whether the population within this radius should be taken into account by the model.

Comments by other panelists on this?

Mr. SNYDER. I would like to offer some additional views on the question of population.

EPA REVIEW OF POPULATION IMPACT

EPA is reviewing a variety of comments made on the application in for the model of interim priorities list and also based on our own view. They felt that there were additional ways which expressed impact on population that were not in the current version of the model, food chain effect being one of these.

We do feel that one of the most important determinants in the priority list is the number of people affected. That cranks in the public bias that this list has and, we believe, the law has.

We also feel that having a zone, while it may appear rigid to the person just outside of that zone, is at least a consistent way to delineate the bulk of the population factor that we would be using in the factor.

I chose my words carefully. If we are going to bring in food chain effects and other things that have some impact, that would add on to the notion of determining how many people are within a certain zone.

Now, 3 miles was chosen and I don't recall—Steve can comment later if that is warranted—the reason that 3 miles was chosen. But we did believe that did give a good base from which to develop the list.

REMEDIES TO INDIVIDUALS

We believe that for a site where only a few individuals are affected, there are a variety of remedies that are possible to provide relief to those individuals, remedies that can be provided by a variety of levels of government, not necessarily the Federal Government and not necessarly Superfund. So the emphasis on high population tends to bring in to the forefront the problems whose magnitude is so great that it requires the level of resources that CERCLA can provide in today's climate.

Mr. GUSMAN. Are there any additional comments on the population issue before turning to validation questions?

Then let's turn to the last of the three subjects; that is, the validation issue.

VALIDATION ISSUE

Is there any additional comment? I wonder if one of the panelist would restate the issue.

Mr. KISSELL. Just validation?

Mr. GUSMAN. Just validation.

Mr. KISSELL. I hope it is not different.

FORMS OF VALIDATION

On validation, there are basically two forms of validation: one is to determine whether the model users provide consistent answers, that presumes that the instructions are reasonable and reasonably interpreted.

It seems to me that is a question of precision and can be reasonably evaluated, perhaps as Dr. Lincoln suggested, by testing a population of individual sites by a series of modelers.

INDIVIDUALS RANKING SITES

Mr. GUSMAN. The discussion noted that one of the approaches was to have individuals who are experienced in ranking sites actually do the ranking and to have a number of people do it so that you don't just get one person's view; you get a variety of views. Then you can then use all the techniques for seeing how well those rankings by individuals compare to the rankings by the model.

Would that be a fair statement?

MULTIPLE RANKERS

Mr. KISSELL. Yes; that is a fair statement. I am not sure if we are going to want to take the time and energy for all sites to have multiple rankers, but that represents a possibility.

What the validation of that data suggests, it appears, that the individual modeler's interpretation has the capability of producing a very wide swing in the model result.

Mr. GUSMAN. When you say the individual modeler's interpretation, do you mean the hypothetical evaluator?

Mr. KISSELL. The evaluator, yes.

IMPACT OF RANKING SITES

Mr. GUSMAN. I wanted to make sure that we had some additional discussion of this point because of the impression I got from our off-the-record discussion that there was some feeling expressed that the mere fact of going through the exercise of ranking sites, as has been going on during the past months, itself is creating additional experience in teaching people how to do a better job of it.

One of the concerns expressed is whether we will be doing any better job in the future than we have done in the past, whether we have some mechanism by which we can learn from what has been going on. The impression I got from some of the comments was that we are learning. And I wanted to get some discussion to that effect on the record.

EPA'S ROLE IN DEVELOPMENT OF VALIDATIONS

Mr. SNYDER. EPA has gone through several validations in developing of the hazard ranking system and following the publication of the interim priorities list.

We have gone through sample scoring in the early development period, worked with a number of States on that process so we can determine the sensitivities of the various factors and understand the availability of data.

We have also undertaken work since the hazard priorities list was published and using that rather substantial intensive work effort as a good base.

We fully expect to make modifications to the hazard ranking system to some degree prior to its use in scoring sites for even action of the priorities list or 400 sites. Following development of the national priorities list, we would again reexamine that very substantial data base to see if there are additional areas where we should do changes.

FEEDBACK ON VALIDATIONS BY EPA

Mr. KISSELL. Harold, how much feedback is there from your process to the people who actually generate the first set of numbers so that they know what your thinking is on the correctness or incorrectness of individual decisions?

Mr. SNYDER. Thus far we have not had formal discussions. There have been a variety of informal discussions with the EPA staff working on the project and various staff members at State levels and regional levels who have worked in the scoring system.

Mr. KISSELL. It would seem to me that, essentially, if you expect to get better results, you would have to have a feedback so the people know what the problems were so that they don't repeat them.

Mr. SCHROEDER. As an example, the State of Texas pointed out they had rated their site with the Mitre system based on what they considered many years of experience and knowledge on the site-specific information. The EPA contractor came in and rerated that site. It came out with a much lower rating, did not come back and really resolve the differences in the method of the rating that was done, and after final discussion after the number was published, the State of Texas may, in fact, be correct, and they feel as if they are. And that type of issue was not resolved.

Mr. CALDWELL. If I might add something to that. That probably happened in some places. It was not the way the system was supposed to have worked. If it worked that way it was because we fell down in the implementation. The way we set up the project was that our quality assurance team would then provide the results to the original raters and give them one opportunity to point out their rating and people are to be given the opportunity to respond. It is very unfortunate if, in fact, the State of Texas did not get an opportunity to come back to us.

CONTINUATION OF VALIDATION PROCEDURES

Mr. GUSMAN. I think the discussion, nonetheless, suggests an interesting continuing validation procedure. I would like to bring this part of this panel's discussion to a close and ask the panel members to feel free to participate as individuals in the comment period which will now start. And we will start with Reva Rubenstein.

GENERAL COMMENTS ON MODEL

Ms. RUBENSTEIN. I have a few brief comments which will touch on validation, flexibility, and population at risk.

One of the aspects of flexibility that should be stated is, I think, obvious. We have all agreed about it before that a model is only a model and the reason you need flexibility is because you want to be able to improve the model as you go along.

I keep thinking of the ideal gas law. When the ideal gas law works, it works very well; but when it doesn't work, it doesn't work, and we use another equation.

Not that the Mitre model is wrong; it is very good for some of the things that it should be good for, but we need that little safety valve of flexibility for the situation where the Mitre model fails.

On the business of validation, I don't think that we should be looking for perfect consistency, even between experts. It is nice if you have at least the sense that people are trained the same. But I only remind you, if you took two expert radiologists and asked them to read the same X-ray, that they would not come up with the same answer 100 percent of the time. And I believe that the numbers are closer to 70 to 80 percent, and those are experts reading.

So, let's not be bogged down by this business of validation on that sense.

The third thing that does bother me is this confusion between population at risk and population actually exposed.

Normally, when you do a study on paper, you determine what your population at risk is. That is where you play a numbers game, because you haven't measured exposure yet. But when you are finally getting your data on who is or who is not exposed, you have got to come up with harder numbers of what the exposure is, what the pathways are. I think questions of food chain and recreational use and so on are extremely important because they help to define the population at risk. They do not, however, define exposure.

That is all I have.

Mr. GUSMAN. Mr. Nosenchuck.

IMPROVEMENTS IN MODEL DEVELOPED BY EPA

Mr. NOSENCHUCK. In my opinion, the hazardous ranking model developed by EPA is a good beginning. We are looking for improvements. The model does not presently consider the level of confidence in the available data. We should be concerned whether data is hard, soft, or questionable. This would relate to the quality of the data as well as the number of data points.

A related point which must be addressed is the type of data. This is especially true in evaluating the air pathway. No criteria presently exists for what air data is acceptable or how air data should be obtained. Also, the model treats all contamination levels in the same way. For example, an observed release of 1 part per billion of a particular pollutant in an off-site well is handled the same as 1,000 parts per million of the pollutant in terms of scoring. The model should be revised to provide greater weight to the higher level contamination. I am still not sure how the annual review revaluation process will affect sites on the national priorities list. It would appear that as remedial actions are undertaken, especially where such work is done in phases, sites could drop off the list before the complete remedial plan is implemented. On the one hand, this would allow some activity at a larger number of sites and, on the other hand, we may not totally clean up many sites. Love Canal provides an example of how a site rating can drop as remedial activities proceed.

Mr. Gusman. Mr. Birns.

CREATION OF PRIORITY LISTS BY MODEL

Mr. Birns. Getting back to the major theme of this session, we were talking about using the Mitre model or modification of it, to create a list of priority sites. I would like to submit that no model will or can create a priorities list per se.

I would like to address to what Harold mentioned earlier when he talked about technical decisions and management decisions, because I think we are mixing the two here and trying to build a model that does the technical as well as management side.

In determining a priority list, the Mitre model is excellent for most purposes in defining the site conditions which are reasonably technical. You can measure, to whatever extent you want, but you go ahead and measure something physical. It is also reasonably good for our purposes when we start looking at the mixed bag of risks to population and to the environment. This requires a combination of both the technical work and management decision.

We then combine those two areas and develop a thing called a hazards rating where, really, the Mitre model stops. It gives you a hazard and then we compare relative hazards. But we have to take that further and add to this hazard rating the management side. Putting together the priorities list we should start looking at things like cost effectiveness of cleanup, whether or not there are other responses such as third-party liability where we use enforcement action, whether or not there are other resources available at the State level or local level that could be brought to bear.

Once those things are combined, the management side with the technical, then we could have a priority list for action at these Superfund sites. And this priority list would include cleanups as well as enforcement and additional investigations.

And to get back, this is exactly what EPA was supposed to do under the statute. The list was supposed to be promulgated; the national consistency plan. It should have included those types of factors, not just the Mitre model.

Mr. GUSMAN. Thank you.

Mr. Wallace.

INCLUSION OF POPULATION EXPOSURE IN MODEL

Mr. WALLACE. I have two comments. The first concerns the model element having to do with population within a 3-mile radius of the site.

Clearly the idea of factoring the size of the population within a 3-mile radius of the site is an oversimplification of the real technical issue: What is the population at risk due to the existence of the site. Each specific site may be different. Some sites may be surrounded by natural barriers to contaminant migration. Some sites may be situated hydrologically down gradient from population centers. As I stated earlier, we need to realize that the model is being asked to do too much.

Mr. Schroeder referred earlier to a site ranking model that his firm and ours developed, along with the U.S. Air Force. In that model, we were able to use this oversimplification because the intended use of the Air Force model was much narrower in scope. It was only intended to rank sites for further investigation work. In other words, we were trying to move from the step where we looked at limited data to decide whether we were going to the next step, which was gathering confirmatory data. We were not trying to set up a total national ranking system. Nor were we getting into areas of public concern like establishing a national priorities list.

VALIDATION OF THE MODEL

My next comment concerns validation of the model. How well the model works can be measured by counting the number of false positives and false negatives that show up when you use the model. In other words, if many of the sites that receive high model scores turn out to be only marginal problems, then the model isn't doing what its supposed to do. In terms of resource expenditures, it means something if we miss a site that should have been on the list, should have been ranked higher, or if a site makes it to the list but, in reality, doesn't deserve any concern.

MONITORING OF CURRENT MODEL

One solution I suggest would be to keep the model in its present form but constantly monitor the results. EPA might establish some sort of quality control program which could, for example, run spot checks on a small, random sample of sites.

I believe the concern of all could be addressed if there were some means of evaluating sites—those on the list as well as those that don't quite make it, to make sure we are not rigidly following a Mitre rule system.

FLEXIBILITY IN MITRE MODEL

Mr. GUSMAN. Several of the people who have commented have dealt with the need for flexibility in the Mitre model. This was dealt with in the panel discussion. I think it would be helpful if, in addition to whatever other points you make, you also cite particular examples of why or how such flexibility might be useful to you, so that we don't just have a concept in the abstract, so that we have some of the particulars on the table.

Bill DeVille.

SPECIFIC EXAMPLES OF FLEXIBILITY IN MODEL

Mr. DEVILLE. I want to side with what Norm and Karl said. Two points: One, when we talk about flexibility and the application of the Mitre model, then as Norm said, the Mitre model is about as good as I can come up with for doing a rough cut. That is all that I think this priority list should be on the surface—a rough cut. We will discuss what the list means for funding purposes and how funding should be done tomorrow afternoon. Two, I think it is critical at this time, if we are going to talk about what we mean about flexibility of application of the model, to talk about what Karl said a few moments ago. There has to be a second or third or fourth set of operations done, once we have run all these Mitre model scores on sites—validated with quality controls—in assembling what it is we are trying to assemble, the national ranking plan of the list.

I think it would clarify matters if we said this is a candidate list for response in remedial action, because I think it is everybody's understanding that sites are not going to be picked off the list, so simply as: "We are going to spend $82 million for this and $3 million for this one," and go with that. Rather, there are going to be stages of management after the list has been published which tend to investigate specific matters relative to the threats or hazards posed by the sites, specific matters of cost-effective, various alternative responses, and so on.

All this means, then, that we are starting with a simple little model using it to collate information into a list. But that isn't all we need to collate that list. We are going to have to worry about ground waters, how badly is it contaminated and with what in making final decisions.

Those are the kinds of flexibilities we need to look at.

Mr. GUSMAN. Dan McGrade.

CHANGES NEEDED IN MODEL

Mr. MCGRADE. The Mitre model, I think, is a good rough cut. It does present the candidates that should be considered for further review. I think it has the key factors. I do think that there are a number of changes that can be made to the model as currently constructed, such as modifying the definition of some of the terms used to scope the key factors without necessarily adding any new factors. One such change is that measured release should consider concentration. I think that can be done without too much difficulty. If you have measured release you should know the concentration. The definition of waste quantity can readily be modified to allow consideration of concentration if there is documented evidence or analytical data acceptable by some criteria on the concentration of that waste and if the waste can be determined to be homogeneous. Then, the hazardous portion of that waste would be considered as the quantity. If the concentration is not known, then it might be appropriate to consider all the waste as hazardous. For abandoned sites, it usually is too costly to go in and find out what portion of the waste is hazardous.

USE OF HYDROGEOLOGIC DATA

An other mechanism needed in the ranking system is an option to allow consideration of more substantial data that really, on this rough cut, can't be put into the model because of the cost. Some criteria should be established that will let the model scorers accept such data for consideration in changing a score.

As an example, more hydrogeologic data, if available, should be permitted to alter the population score. Some guidance on how such information will be taken into account by the scorer and the criteria for acceptance of such information would be helpful.

Mr. GUSMAN. Joel Hirschhorn.

POTENTIAL FOR MISUSE OF MITRE MODEL

Mr. HIRSCHHORN. I disagree. I have no factual basis for coming to the conclusion that the Mitre model represents a reasonable mechanism even for a rough cut in the sense that there seems to be a number of technical and scientific reasons for coming to the conclusion that many high-hazard abandoned sites might not be included on any list emanating out of the use of the Mitre model. For example, sites which had small quantities of highly toxic material could get a zero rating. Sites where populations, large populations, that are being exposed simply do not get any significant rating with the use of the Mitre model. Similar waste sites which have, perhaps, certain types of mixtures, certain kinds of concentrations, can get included.

So, the problem with the Mitre model is not that the sites that are revealed by it are not bad, they probably are bad, but that it does not necessarily reveal many sites which are bad, and if included in my list would possibly displace others from a relative small number of sites that would receive funding. Therefore, the potential for misuse of the Mitre model is very real and it is real based on technical and scientific reasons we have discussed here.

Mr. GUSMAN. Jim Kerrigan.

DEFICIENCIES OF MITRE MODEL

Mr. KERRIGAN. One area where the model is deficient is in the evaluation of the linkage between the waste source and the target population. The attenuation or demobilization characteristics are not directly considered. We heard today that some consideration was given to these factors by the selection of the 3-mile radius for delineating impacts.

The Mitre model could be modified to take into consideration soil attenuation, where data is available or could be collected. This would permit the use of scientific data to properly represent true conditions.

It is common knowledge that most metal ions and inorganic metal compounds are consolidated and trapped by a clay medium. As such, leachate containing heavy metals cannot pass through clayey soils at elevated concentration; thus there would be a lack of scientific prudence to completely neglect these factors. There is a need for the agencies to maintain flexibility in using the model so that the highest degree of engineering and scientific integrity can be exercised in the application of the model.

With regard to the final use of the model results, I believe that it is necessary to bring the Federal and State governments and the owner, if one has been identified, together to discuss the data that was used and the corresponding results. At that time, it may be possible to negotiate an equitable solution or modify the results if faulty information were used in developing the ranking score. Once the list is published, it should identify only those waste sites that represent a real hazard and can be controlled by positive action.

NEGOTIATION SESSION BEFORE PUBLICATION

Mr. GUSMAN. Just for clarity, were you proposing some kind of a judgmental negotiation session before publication of the list?

Mr. KERRIGAN. Yes. I would suggest that a negotiation session take place before EPA publishes the list. First, it would allow an opportunity to correct the use of poor data. As explained earlier by Ms. Ferguson, the basic data was used incorrectly by the EPA team and the Texas staff was not given an opportunity to advise. The result was not critical for the list of 115, but it could be significant in the next plus-400 list. Second, it would provide an opportunity for the Government and the known owner to reach a voluntary compliance schedule which would hasten control of the problem.

Mr. GUSMAN. Let me turn to Reva Rubenstein.

CONCERN WITH CRITICISM OF MODEL

Ms. RUBENSTEIN. I am a little disturbed by Joel's statement because I think that is part of what has been bothering us. I am not certain that the model is going to ignore environment disasters waiting out there and, until I am certain of that, I can't condemn the model.

I think you will agree there has to be another route of moving in to put more data into the model. I don't agree with these broad statements that really cannot be validated.

Mr. KISSELL. I will second that.

CONCERN WITH LIMITATIONS ON DATA

Mr. HIRSCHHORN. That is my point. The model, as it stands now, the way it is used with the limitations on data being put into that model, simply creates uncertainty. We do not know—I admit I do not know—whether or not we may have missed sites or whether or not we have rated sites—because we have given some sites a zero factor due to the way the model is devised. Perhaps we have left out a serious hazard. That is my problem. The model as a simplification, an expediency would be vastly improved if we create a mechanism to incorporate available information such that we would then bring in sites that are revealed to have a high hazard.

Ms. RUBENSTEIN. There I agree.

Mr. GUSMAN. Let me ask Susan Ferguson to comment next.

USE OF MODEL IN TEXAS

Mr. FERGUSON. I want to make the statement that in Texas we felt the model worked well. It showed what we felt would be the high-risk sites and which ones would be the low-risk sites. Our only problem came in the application, using different data basis in a short period of time with two different people applying the ranking. These problems are easily resolved and do not reflect the integrity of the model itself. We thought it worked rather well.

Mr. GUSMAN. There are several people who have asked to speak. Do any of those people want to deal with this question of the integrity of the model?

Mr. HUNT. I do.

AUDITOR PERSPECTIVE ON FLEXIBILITY IN MODEL

From an auditor's perspective on flexibility, this certainly will not be the first review we ever do in the Superfund program and I am sure Congress is going to want to know how EPA arrives at the 400 list, maybe it could be 600. Right now the model serves from the auditing perspective a consistent set of factors applied to sites across the Nation to come up with an end score.

From the discussion I heard this afternoon, there is a lot of additional data or optional data we may want to put into the model to try to reduce those end scores down. I do not have a problem with that, it is just what criteria and what guidelines are going to be laid down to allow it to happen and how is it going to be documented so when I come in I can see what took place and why these scores were reduced down to the levels they are.

Now, that is going to be a very difficult process. I think something Hal talked about earlier in terms of public comment or public airing of these sites—we are talking about 600 sites, possibly 1,000 sites. Now, we have 56 States and territories out there. How long is this going to take? Hawaii may have 1 site or 2 sites, New York has 50, New Jersey 40. You are going to have a very emotional issue throughout the country. You are going to create all kinds of concerns and perceptions and reactions from people out there.

Now, how do we deal with all that? You talked about rigid time frames. The program, to this point in time, has been rather slow. The contingency plan draft, if we want to throw that out as an example, we could not get comments back from 11 other agencies and OMB within 30 days, yet we are going to try to do this with 56 other entities with the priorities list. I think you have to have some rigid time frames and I think what Hal is talking about is having some cutoffs and sticking to them. That has been the problem with EPA in the past.

I think this public comment is needed, but there has to be a cutoff and there has to be a realization that we are well into the program, the clock is ticking; 5 years are going to be up, people are going to be asking, where do we go from here.

I would like to have some data on which to go at that point in time.

CURRENT SITES ON NATIONAL PRIORITY LIST

Mr. GUSMAN. Am I correct in saying that there is a consensus in this room that whatever flexibility provisions may or may not be added for the Mitre model with respect to the selection of future sites, that everyone here is agreeing that consideration of those flexibility provisions should not be used to reopen the question of what sites are on the initial list? Is there anyone who disagrees with that?

Mr. SNYDER. I would like to make a comment on that point. We believe that in establishing the national priorities list when necessary to rescore the 115, and all we ask for in the sites to be nominated by the States, which include the 115 in that list, we believe that based on the way that the 115 score and that really the 95, if you follow our discussion earlier, the 95 sites we have every reason to believe those sites will be on the 400 list and we are not going to reduce sites because two truckloads of waste drove away between October 23 and the time we came out with the list. We are going to try to keep that scoring consistent, but we will rescore the sites because we feel that to not do that will slow the development of the national list as a mechanism under the NCP.

Mr. GUSMAN. That is a very useful comment, but it covers an issue and a problem that is outside of the scope of what I was intending to ask.

What I was intending to ask is concerned, simply, with the proposal that you might add to the model. It was my understanding, from the comments of the group, that the proposal was to not thereby hold up action with respect to the initial list, but to move forward. Whatever add-ons may be introduced would be introduced for development of future possible lists.

Is there anyone in the room who disagrees with that?

DELISTING OF CURRENT SITES

Mr. SCHWARTZ. We are concerned about sites once being cleaned up, getting off the list. Once the 115 sites get cleaned up, we want to know how they are going to get off the list, what mechanism for delisting once the cleanup is done.

Mr. KISSELL. I would agree with the caveat that, to me, it doesn't make any difference whether any modification or flexibility system or delisting procedure is instituted or not in the 115 list. I think the point you are trying to get to is, you don't want to jeopardize remedial actions while the 115 list is rethought.

I would agree with that as the objective. If by some quirk there is a site that shouldn't be on the interim list, the agency ought to have the opportunity to take it off the list because additional data is available or by whatever reason. If something doesn't belong, somebody ought to bite the bullet and say, "Hey, it doesn't belong." I don't think anybody would agree there was a gross misrepresentation by the interim list, 95, whatever; it is a pretty good list. It is a good starting point. They are not going to get everything tied and cleaned up in the next 6 months. So, if in the next 6 months somebody says, "Hey, we missed the boat." The opportunity ought to present itself.

Mr. GUSMAN. Any further comments on this issue?

CLARIFICATION OF FLEXIBILITY

Mr. DEVILLE. I think we probably need to clarify as a semantic issue, whether we are proposing changing the model when we talk about adding flexibility to it. I don't think I have heard any concrete proposals discussed today that would result in significant changes from the model's present constitution. I think most of what I heard is that there should be some provision once the model has run the data through it, for technical and administrative decisions based on any necessary additional information to be involved. I, for one, have got to say that I would hate to see a slowdown on any process involving the current list—or the development of the remainder of the list—in an effort to clinch the model a little more.

I think Joel's concern can be handled by what I think we meant, when using the term "flexibility." But if we leave something out that looks dangerous and we have not yet picked it up, there are ways we can do it outside the model itself.

Mr. GUSMAN. Dan McGrade.

PROGRESS OF EPA

Mr. MCGRADE. I would like to make a couple of comments about some of the things I just heard. EPA has proceeded slower than Congress expected, but we must realize that this is a very difficult problem to grapple with and I can certainly understand the need to proceed carefully.

I think that we are to a point in the program where we should get on with the job of cleaning up some of these sites and, therefore, we shouldn't dwell on any particular model. Whatever model you come up with is going to miss some sites. There is no way of getting around that. I don't know how to make a perfect model.

CLOSING REMARKS

Mr. GUSMAN. That essentially is the time that we have at our disposal this afternoon. I think we have a pretty complete record of the various points of view that have been expressed ranging from concern about the model through to expressions of general feeling that it is at the present point doing a job that is sufficiently credible, that one should move forward altering the course somewhat in direction, as required.

AGENDA FOR MARCH 20

Tomorrow we will turn to a somewhat more general discussion of the subject dealing with general problems and processes for analysis of information in the morning and then to the relationship between priority listing and funding in the afternoon.

[Whereupon, at 5:40 p.m. Friday, March 19, the workshop was recessed to reconvene at 10:15 a.m., Saturday, March 20.]

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WORKSHOP ON SELECTION OF HAZARDOUS WASTE SITES FOR SUPERFUND FUNDING

SATURDAY, MARCH 20, 1982

Washington, D.C.

The workshop met at 10:35 a.m. in room 1224, Everett McKinley Dirksen Senate Office Building, Mr. Sam Gusman (senior associate, Conservation Foundation) presiding.

PARTICIPANTS

SAM GUSMAN, SENIOR ASSOCIATE, CONSERVATION FOUNDATION
JOEL S. HIRSCHHORN, OFFICE OF TECHNOLOGY ASSESSMENT
JOHN HUNT, GENERAL ACCOUNTING OFFICE
HAROLD SNYDER, CHIEF, DISCOVERY AND INVESTIGATIONS BRANCH, ENVIRONMENTAL PROTECTION AGENCY
STEPHEN CALDWELL, ENVIRONMENTAL PROTECTION AGENCY
DAN McGRADE, CHEMICAL MANUFACTURERS ASSOCIATION
ROBERT G. KISSELL, JR., E. I. DUPONT DE NEMOURS & CO.
RANDY MOTT, ZUCKERT, SCOUTT & RASENBERGER
MS. SUSAN FERGUSON, TEXAS WATER QUALITY BOARD
MS. REVA RUBENSTEIN, NATIONAL SOLID WASTE MANAGEMENT ASSOCIATION
ERNEST SCHROEDER, ENGINEERING SCIENCE
MS. LINDA GREER, ENVIRONMENTAL DEFENSE FUND
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NORMAN NOSENCHUCK, DIVISION OF SOLID WASTE, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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WILLIAM WALLACE, CH2M HILL
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WILLIAM B. DEVILLE, DIRECTOR OF POLICY DEVELOPMENT, OFFICE OF ENVIRONMENTAL AFFAIRS, LOUISIANA DEPARTMENT OF NATURAL RESOURCES

OBSERVERS

MS. GAIL BINGHAM, CONSERVATION FOUNDATION
DR. SUELLEN PIRAGES, OFFICE OF TECHNOLOGY ASSESSMENT
DOUGLAS HAYNES, GENERAL ACCOUNTING OFFICE
RICHARD L. STANFORD, ENVIRONMENTAL PROTECTION AGENCY

OBSERVERS—Continued

RICHARD STOLL, CHEMICAL MANUFACTURERS ASSOCIATION
SCOTT SCHWARTZ, ZUCKERT, SCOUTT & RASENBERGER
RON BUCHANAN, CONVERSION SYSTEMS
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MS. KRIS HALL, ENVIRONMENTAL DEFENSE FUND
MS. JACKI RAMS, AMERICAN ASSOCIATION OF STATE AND TERRITORIAL SOLID WASTE MANAGEMENT OFFICIALS
TIM HALEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION
RICHARD CORRIGAN, CH2M HILL.

ALSO PRESENT: WALLACE BERGER, SUBCOMMITTEE ON HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES OF THE COMMIT-TEE ON APPROPRIATIONS

PANEL DISCUSSION

Mr. GUSMAN. Let's start with a panel discussion summarizing the informal discussions that we have had for the past 2 hours.

Mr. McGrade, why don't you begin.

PURPOSE OF THE MODEL

Mr. McGRADE. We discussed at the outset what was the purpose of the model and I sensed that we agreed that the purpose of the model was to identify the 400 high-priority sites but not necessarily in ranked order. The purpose of the list should be to identify sites which are being considered for further investigation and might subsequently be identified as remedial action.

The next item we discussed was: Should the model be substantially modified or is it more important to proceed? The sense I got out of the group discussion was that the model should be kept simple. More sophisticated models might not substantially improve the list and would probably delay progress on the program and that it was more important to proceed with funding and remedial action than to try to make the model be a better reflection of the real world.

INVOLVEMENT BY STATES

One of the items we discussed was the process of using the States to do the screening, and the general feeling I got from the summary was that process has seemed to work and it is desirable to continue that procedure.

The last item was State preparedness; that is, whether or not it should be considered in priority listing. I got the feeling that most people thought it should be a consideration but there was some question as to whether it should be a list or not-list decision or whether it should simply affect the actual order of the ranking.

CONSENSUS OF GROUP ON MODEL

Mr. GUSMAN. Let me build on a few of your comments. During the informal discussions we attempted to get a sense of whether there are people in the group who felt that the model, as it currently exists, subject to the kinds of modifications we discussed yesterday, is basically a satisfactory model or whether some rather substantial changes of the model are needed. The changes might be of a type that revise, in a substantial way, the factors that go into the model or even that use approaches that don't involve modeling.

The feeling that I got from the group, based upon the discussion and some self-evaluation that went on in the group on this matter, was that the group is essentially equally split on this matter, about 8 out of 16 people felt that with some minor modifications the model is satisfactory as is while another 8 felt that some substantial modifications would be a very good idea.

Then, looking next at the question of whether there is a willingness to postpone actions that are coming up in the near future in order to make changes in the model, there was a very substantial feeling that such postponement should not occur. Out of 16 people, 13 were of a mind to say that regardless of dissatisfaction with the model, that they were not very willing to postpone actions that would lead to actual site cleanup in the near future.

Let me turn to other members of the panel to comment on what Dan and I have said so far and to add to this record of our informal discussions. John Hunt.

Mr. HUNT. I think there was a large discussion among the group about the need for a mechanism to allow additional data, that the consensus seems to be that the model gives you some basic information, however in many cases there are other sets of information available to better define the problem. Now, how do we get that into the model? Some discussion focused on better guidelines and better definitions. We can address the issue of waste quantity and waste concentration or outside the model. Once we rank the sites and come up with some additional information, how do we do that?

I think there was a feeling of how to put that into the system someway. We did not actually decide how that was to be done but there is a need to do it.

Another thing I must mention is there seems to be a strong feeling about moving forward with the program. This issue of State preparedness, some people believe it should be within the model and some believe it should be outside the model. There is still a feeling that we must go forward.

Mr. GUSMAN. Bill Wallace.

ROLE OF SITE RANKING SYSTEM

Mr. WALLACE. Let me add to that by saying that I think the site ranking system objectives are the key of this whole process. Our discussion over the past several hours has been focused around various means to achieve the end of moving ahead with the Superfund program. This means getting something that is useable, using the resources in the best way, not picking up errors by putting one site on which should have been off or vice versa. Also we are not willing to say that it is worth spending a lot of time to correct the model so that it fits every possible situation. However, there may be some small technical or procedural adjustments which would improve the model, but not at the expense of moving ahead. If the State is ready to act, they ought to be given the ability to act. Further, if there are ways to cut down the redtape involved in getting money to States that are ready, that would be a direct benefit to the entire program as a whole.

I also submit that there is a concern that if there are wrong sites on the list and if there are errors in the whole site ranking process, that it does create in a lot of people's minds some large difficulties in saying that, "Yes, we have the right system here." To that extent, I think the consensus of the group was that we ought to look at the cost of correcting those problems in terms of the time it is going to take to get a workable system back on track versus the benefits that one derives from having a perfect system.

Going along with that, there is an implicit use of resources and effort to correct it, which given finite resources and limitations also has to be taken into account.

Mr. GUSMAN. Hal Snyder.

STATE PREPAREDNESS

Mr. SNYDER. I wanted to make a couple of comments that I think express some ideas that came from several different sources in our earlier discussion relating to State preparedness. And one of the points brought out was that if you make the State preparedness requirement too rigid, that a State would lose the benefit of listing sites and then have settlements, responsible parties be stimulated by that.

This suggests that if one element of State preparedness, for example, were to be matching funds, that it isn't necessarily rational that a State would have to have matching dollars for every site that would be on the list because some percentage of those sites, perhaps a substantial percentage, would be settled through negotiating or legal action with responsible parties. This only serves to illustrate the complexity of trying to label State preparedness.

ERROR RATE ON INTERIM PRIORITY LIST

Another point that was mentioned in discussion by me was that the error rate on the interim priorities list as it now stands, error rate in terms of sites being on the list that should be on the list is small in our judgment.

Reinforcing another point that relates to how to improve the scoring process that many or perhaps all of these improvements could be achieved by better guidance, better instructions, and I would add, better training, which is something different than inventing or validating another model.

Mr. GUSMAN. Do you mean better instructions for the people who are filling out the forms that lead to the rating?

Mr. Snyder. Correct; better training, better guidance for the State personnel, Federal personnel involved in the process.

Mr. GUSMAN. Dr. Lincoln.

OBJECTIVES OF THE MODEL

Dr. LINCOLN. I would like to follow up on several of the comments to indicate the divergence of at least some of the ideas that were expressed at this morning's meeting.

Going back to a point that Bill brought up about the objectives of the model, I think it has been shown that different people bring different objectives in talking about the value in a particular model or what the value is in getting on a list.

One idea that was expressed—let me divide that into three different categories. We have talked today about a list of 400 sites, a list of 100, a list of greater than 400. One approach to the expectation of a model or decision schemes such as the Mitre model would be a discrimination or differences between sites that managed to get on the list of 400 versus sites that managed to get on the list of the top 100.

Another way of cutting the problem is over whether or not a Mitre model, or any such scheme, is sufficient to cut the problem to a fine enough detail to discriminate against the 99th site or the 100th site or any small discriminator.

The issue also was brought up as to whether or not the 400 sites should indeed be called the worst 400 sites. I think this was shown rather clearly in the discussion about some of the expectations as to how States put sites into the review process by EPA.

Some of the examples that were brought up were that sites were put on the list by States considering issues such as, perhaps the States did not have sufficient funds. Big buck sites, I think, was the characterization.

Another was one that may or may not have been used but where you have a recalcitrant company who has been identified as an owner or operator but has not shown willingness to take on its responsibility. There is leverage provided by being placed on such list. There is also leverage on States which have not taken sufficient actions in this area by having their sites appear on the list and then discovering that they don't get removed from the list because those particular States do not have a sufficient program set up to handle that problem.

The process of site prioritization continues after the initial State submission by having EPA run the information and data through the Mitre model that has been developed. But as it also has come out, there are additional judgments and issues that go beyond the Mitre model in order to get a particular site on the list. Quality control issues, negotiations with interested parties, all of these are additional factors that in some respects are ad hoc issues to be included in the decision as to which sites make it on the list.

The feeling that I come out today with is that there are a variety of approaches that are getting utilized with the Mitre model that in essence, shall I say, make it richer than the discussion of pure Mitre model as a decision scheme might lead some to believe. There are decisions being made at the State level that include issues beyond the Mitre model. There is the Mitre model and then there are issues after the Mitre model before sites actually get on that list.

Mr. GUSMAN. I would agree that the discussion we had this morning was in the context of the use of the model as a part of the decisionmaking mechanism where the decisionmaking starts with the identification of sites to be submitted for consideration and then goes on after the rating of the candidates by the model. That was, it seems to me, in part one of the reasons why there was such a rich discussion this morning of interaction between States and the Federal Government in different ways.

Is there anything else that any of the session panelists would like to raise?

Mr. SNYDER. I have one other item, Sam.

Mr. GUSMAN. In the context of creating a summary of what happened? We will handle other comments as individual comments after the summary.

MECHANISM FOR INCLUDING STATE PREPAREDNESS

Dr. LINCOLN. I was wondering whether it would be worth getting on the record, since State preparedness was such a significant issue in the discussion today, an attempt to summarize the mechanism by which State preparedness might be included?

I am not making a comment on the legal requirements, as I don't want to indicate a proper interpretation on the legal requirements, but it seems like I heard three different mechanisms for including the State preparedness. One was to make State preparedness to handle a particular site a threshold to getting on the list. That is, it was a go/no-go decision as to whether a particular site would get on the list. Another opinion expressed today was that in some way it be made an additional factor in the actual ranking of a particular site. And the third would be that it doesn't play an explicit role in getting a site on the list but that it would play a very significant role in the decision as to whether there would be further actions subsequent to getting the site listed.

COMMENTS ON PANEL DISCUSSION

Mr. GUSMAN. If there are no other comments by the session panel, let's then open the discussion for individual comments.

There were a number of points of view that were expressed by individuals in the general discussion which preceded our going on the record. My hope is that you will now speak individually on the record to get these entered.

Let me start with Bill DeVille.

Mr. DEVILLE. I would like to pick up three points which I think were touched on in the review by the panel, and perhaps should be expanded a bit further from the perspective of one of the States.

First of all, the model that we have been discussing—the Mitre model—I think we all agree is a very simplistic device. I think most of us have looked at it as perhaps overly simplistic for achieving all of the management decisions that would need to be made in putting together a priority list and in making funding decisions and relative rankings within the priority list as a whole.

RESOLVING PROBLEMS WITH CURRENT MODEL

Very well. I would, however, conclude at the same time that a combination of quality control and assurance at the Federal level in looking at the subsmissions and rankings by the State, together with the introduction of improved guidance to those persons involved in ranking sites, could resolve many of the difficulties I have heard people stipulate about the present model as to its use. Such things as, for example: Very small quantities of highly toxic waste, which, currently, might be given a zero weight—and that would be inappropriate. But, I think, guidance and interpretation of the entry and use of available scoring options can resolve questions like that one, without modifying the model itself.

My next point is the importance of State preparedness. Again I point out this statutory requirement that is in the same paragraph in which the Congress directs the Agency to put together a priority list, which includes as components for evaluating candidates for inclusion, such things as the impact on populations exposed, quantities of waste, et cetera. It also includes in the same phrasing, State preparedness, and I think that can be handled several ways; it is a fairly complex issue. But, I want to stipulate from the State perspective, that State preparedness is something we regard as extremely important to the proper administration at the Federal level of this process of ranking sites and making funding decisions.

My final point on that is, that for those States who are prepared to go, let's move forward as rapidly as possible. I would propose that we go ahead and continue to assemble further recommendations by the States to EPA for inclusion of new sites on the priority list as rapidly as possible, for moving to the list of at least 400 sites.

EPA currently has lists of more than 280 sites. We usually talk about the list of 115; but EPA has received more than 280 sites which have been scored and submitted by the States and regions. I would be delighted if, by July 1, EPA could move forward, and have initiated the process of developing agreements with the States to start moving action on those sites already in hand, and getting on with it. And I think that that has additional benefit, in terms of national policy, of encouraging the States to get prepared, if they are not now prepared to deal with these sites; and also that to unduly delay this process, to let other people catch up, is going to be a negative incentive for those of us who have been investing—for years—considerable resources for dealing with these problem sites.

Mr. GUSMAN. Let's turn to Norm Nosenchuck.

Mr. NOSENCHUCK. Thank you, Sam.

LACK OF URGENCY IN IMPLEMENTING SUPERFUND

I have a real concern that there does not appear to be an appropriate sense of urgency under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, commonly known as Superfund, that was enacted on December 11, 1980.

Let us not lose sight of our goal which is the clean up of sites that are releasing hazardous substances, pollutants, contaminants which are a danger to public health or welfare or the environment.

Title II of the act, titled "Hazardous Substance Response Revenue Act of 1980" provided for imposition of taxes and in that particular title there is a termination section which I would like to read into the record:

> The taxes imposed by this section shall not apply after September 30, 1985, except that if on September 30, 1983, or September 30, 1984—
>
> (1) the unobligated balance in the Hazardous Substance Response Trust Fund as of such date exceeds $900 million, and,
>
> (2) the Secretary, after consultation with the Administrator of the Environmental Protection Agency, determines that such unobligated balance will exceed $500 million on September 30 of the following year if no tax is imposed under section 4611 or 4661 during the calendar year following the date referred to above, then no tax shall be imposed by this section during the first calendar year beginning after the date referred to in paragraph (1).

On March 12, when I was in Washington, D.C., to meet with EPA, I received from EPA a copy of their "Superfund Accomplishments" list that was distributed as part of the EPA press conference that date. Bear in mind, this is $1^1/_3$ years after the date of Superfund enactment into law. In this EPA document are the following items: Removal actions 54 sites, $19.8 million; remedial action initiated 37 sites, allocated for remedial action, $34.1 million.

Those two items together total about $55 million. Time is money and we are running out of time. I am concerned that we are moving ahead so slowly that the amount of funds that we hope to collect under the Superfund legislation will, in fact, never be collected because the funds actually will not be expended. That disturbs me. I hope I am wrong on this.

Getting back to some of the other issues. The State preparedness must and should be a factor in considering the priorities list. I think it is a major mistake to put sites on the list that in fact are never going to be addressed by the States.

Bear in mind the following statement under the national contingency plan portion of the law:

> In assembling or revising the national list, that is the national priorities list, the President shall consider any priorities established by the States. To the extent practicable, at least 400 of the highest priority facilities shall be designated individually and shall be referred to as the 'top priority among known response targets', and, to the extent practicable, shall include among the 100 highest priority facilities at least one such facility from each State which shall be the facility designated by the State as presenting the greatest danger to public health or welfare or the environment among the known facilities in such State.

My interpretation of this law is that it clearly indicates that the State controls what site goes on the list. That is how it should be.

DEFINITION OF SITES

When we address the question of the Mitre model, I would like to see the following an issue that should be addressed and resolved: that of multiple sites in the same general area, should they be rated as one site or as individual sites? One site would likely produce a higher rating because of a larger population at risk. If sites can be lumped together, what criteria should be used? Hydraulic connection, distance, same generator? This issue should be addressed and resolved.

Thank you.

Mr. GUSMAN. As there are additional comments during this portion of our discussion, I would particularly welcome any additional views that amplify on what Norm Nosenchuck just raised about definition of a site. This particular issue was dealt with only briefly during our informal discussion. If there is anyone else who would like to express a view on it, I believe that would be appropriate during this period of our on-the-record discussion.

The next comment is by Tim Haley who is sitting for Karl Birns from the State of New Jersey.

USE OF MITRE MODEL BY STATES

Mr. HALEY. First of all, I would like to echo the comments that Norm and Bill made, the important thing from the State of New Jersey's perspective is that we can't wait any more. In that respect, the Mitre model is as good a tool as anything else.

I have heard from no one in the last 2 days that the problems associated with developing a list are susceptible to specific scientific calculation. If that is, in fact, the case, the ranking of sites by number is a pretty pointless exercise. The statute itself does not require that the sites be ranked by number. The statute requires that a list of 100 sites be drawn up and a list of at least 400 sites be drawn up. It is conceivable we can take all the submissions by the States and put them in the second list.

In terms of the Mitre form itself, it is not bad and it is not good, but we have to realize that the States used the Mitre forms for different purposes. There also was different information put into it by different States. We, for example, in the State of New Jersey, used the list essentially as an attempt to obtain funds for expensive cleanups. In terms of separating data issues from the issue of where do we spend the money, I think we have to look at some different criteria for determining how money is spent.

Two issues that have not been addressed in previous sessions have to do with, first of all, multiparty suits and multigenerator suits where, because of the very nature of the number of parties involved, a settlement is not likely. In that case, we should comply with the statutory mandate of Congress and go in and fix the problem first and collect later.

ROLE OF RECEPTORS

The second issue is that anything we do should be keyed on receptors and we should look at what we are trying to protect.

It seems to us the first priority is protection of human life, second is potable water supply, the third should be protection of sensitive ecosystems, and the fourth should be to preserve land use alternatives.

So, the issue becomes essentially, if we look at the receptors, can we wait if we don't spend the money now for the 5 or 10 years it takes to resolve the legal issues. And I would like to reiterate again that some provision should be made to encourage the States who are ready, willing, and able to spend, because we can't wait for more than the 5 years it would take for all 50 States to be ready to spend money and act under this statute.

Mr. GUSMAN. Hal Snyder.

SITES EXCLUDED FROM PRIORITY LIST

Mr. SNYDER. I have a comment that I think relates to a point raised earlier by Joel and deals with the concern about false negatives in developing a priority list or, expressed another way, the sites that did not get on the list that should have been on the list.

In the analysis that we did following our quality assurance effort for the 115 list, we took a list at sites that were not included on the list but perhaps should have been and as a result of that analysis we think that we now have a reasonable understanding of how some sites may not have been included and what types of changes we may need to incorporate either into the scoring system or the guidance or instructions that would bring those sites within the scope of consideration. So that is the type of analysis that we did.

And going back to some things that we discussed yesterday relative to what EPA's intentions are as far as examining any future list and reexamining the techniques we used to develop the list, that we would continue to look carefully at any false negative situations that might arise and try to ascertain what technical changes or guidance change would be appropriate to eliminate those problems.

CONSENSUS CONCERNING STATE INVOLVEMENT

Mr. GUSMAN. Joel Hirschhorn, you wanted to comment. But before you do, let me just make note of one point. We have heard from three people who are actually involved in State government. They all have made substantial comments along the lines of let's get on with some action at this time. State readiness is a factor and has been brought in rather strongly by all of them, and the general tone of wanting State involvement and wanting action based on that State involvement I think was clear from all the statements.

I am not aware of any contrary sentiment in the room to speak against that. But if there is, I would urge you to comment during these next few minutes. I raise this so we can see this issue in perspective on the record.

Let me turn to Joel Hirschhorn.

NUMBER OF SITES NOT INCLUDED

Mr. HIRSCHHORN. First, I would like to ask Hal a question. Could you tell us how many sites out of the 287 did not make the interim list of 115, but that you think should have made it as an indicator of that kind of error?

Mr. SNYDER. Of the 282, not the 287, somewhere around 8 to 10 sites out of what we saw in that total list perhaps should have scored high enough to be on the list. A combination of uncertainty of data and the combination of whether the instructions and factors accurately were truly expressed about these sites, that is somewhere in the same error rate that I mentioned earlier, anywhere in the 5 to 10 percent error, whether you are comparing it to the 282 or comparing it to the 100 to be selected. Not a bad rate.

SCREENING OF CANDIDATE SITES

Mr. HIRSCHHORN. Even if it was that error rate, and let's say it is turning out to be a little less than 5 percent, if that same error rate existed on the 800 or so sites on the second go around, we have a very substantial number of false negative sites, particularly taking into consideration that you are only talking about perhaps 170 sites that could get funding.

So it is not an insignificant number here at all. But, beyond that, I wanted to make the comment that based on everything that I can see going on at EPA, particularly surrounding the interim list and subsequent actions, the more sites you have on any list the more uses of the list and the more data used to rank sites, the less likely it is that a substantial number of sites will get funding, and particularly within the next 3-year period.

What I conclude from that is what we need is a system that better screens candidates to reduce the number on the list and that creates some form of subcategories or sublist related to function, and that uses a more discriminatory form of Mitre model perhaps using State preparedness, and that the major orientation of the model and its application should be to insure spending money not in measuring risk or measuring hazardous or in selecting a specific type of remedial action used ultimately.

Mr. GUSMAN. Reva Rubenstein.

INDUSTRY CONCERNS

Ms. RUBENSTEIN. First, I would like to speak as a person who is not representing a State, that there are also industry groups that are very concerned about the urgency of this money that is being collected, being spent. I would not want that to go into the record unamended.

Mr. GUSMAN. Are you saying that there are industry groups that feel a comparable sense of urgency?

COOPERATIVE AGREEMENTS WITH STATES

Ms. RUBENSTEIN. Yes, I believe that is true and that money collected that just sits there is not to anyone's benefit.

Second, I don't want to make a statement on the record as being critical of EPA. I understand how difficult it is for bureaucracies to work in a timely fashion. Part of the problem is the cooperative agreements with the States. These things do take time to work out and any delay on this could very seriously turn the September 1983 deadline.

Also, I would like to speak for State preparedness from the other angle. All the other things that have been said about State preparedness I agree with. But State preparedness is important in addition to its legal meaning in the law; State preparedness would point out those States that can produce less uncertainty in the model. Less uncertainty in the model means more data collection; State preparedness means more cost-effectivenss in the use of this money. One of the measures, it seems to me, of the ability to spend the money wisely is the preparedness of the State both administratively to give out this money and to oversee the results.

That is all.

Mr. GUSMAN. Mr. Kissell.

INVOLVEMENT OF INDUSTRY

Mr. KISSELL. I will be the guy who says there is a sense of industry. Industry has a sense of urgency about having Federal share of its program underway. We are kicking a bundle into the fund. It is not Government money; it is industry money or at least 87½ percent of it and come 1983 although one might think that at the end of 1983 if we really have not done anything, we don't have to pay any more taxes. That is a very shortsighted view of it because come 1984 when the hearings begin about reauthorization of the program, we are going to have another, at least 10 years of taxes to kick into the system.

So, industry has a very substantial stake in seeing that money is, in an efficient way, spent cleaning up the program so that we don't end up 3 years from now or 2 years from now with egg on our face about having botched this thing. So that is my offering, there is a sense of urgency.

I want to respond to Joel's comment about the significance of the 5-percent error or whatever percent error. The false negative data. I have at this point heard no one say that there are substantive, major, serious deficiencies in the kinds of data that the Mitre model seeks on a site. I have heard calls around the table for the need to do some fine tuning to improve the guidance to perhaps give recognition to individual cases but no over all out and out call that there are major factors involved in the site that are not addressed in the model and therefore are going to miss things.

The key to identifying a site is having some reasonable amount of data, and I would agree with Joel, the first step is to screen the universe by some hopefully reasonable system or a particular process to come up with the candidates at which you spend a modicum of money and you continue to spend money if there is some reasonable belief that there is a particular problem.

I would offer that there are going to be a lot more ways than 5 percent of some sites that don't get caught in all. Just the inflation negative aspect of the inflation value of the loss value of the proceeds, proceeding over time is going to be more than 5 percent, if we want to consider 5 percent missed sites as being misused money.

I think my last point on the model is, and this is also an endorsement or encouragement for proceeding in getting some information under our belts, there is no way for us to prove that the model or any model is any good until you determine whether it accomplished the task that you wanted it to accomplish. And that won't happen until we got some sites that are cleaned up and we can go back and look and say: Did the model properly rank the site? Did the cleanup accomplish the task? And did we in fact have the right priority assigned to that site compared to other sites? Was it a good tool for telling us how to do it?

And until you got a lot of information under your belt there is no way you are going to prove or disprove that the model was any good.

Thank you.

Mr. GUSMAN. You raised one point that I think is important to reemphasize, and that is to note that this is a workshop on selection of hazardous waste sites for Superfund funding and not a workshop on cleanup measures or the adequacy of cleanup measures.

So, while there is a substantial interest expressed informally on cleanup measures, it has quite properly not entered very much into our discussions.

I believe, for the purpose of dealing with the site selection issue, we should keep it that way for the remainder of today, but you have noted cleanup as a factor.

COLLECTING DATA THROUGH REMEDIAL ACTION

Mr. KISSELL. The fact is that when you go through a remedial action, you are going to collect data that will help you better understand the site. We won't have spent $25,000 on defining the Mitre model parameters, considerably more study will have been undertaken and we will be able to go back and look at the larger data base and say, "Was the small data base in fact accurate?"

I am not judging the cleanup effectiveness or anything, Sam, on my statement. It is the fact that once you have gone through all the exercises, the complete cycle on a site, you know very much more about that site and then you can go back and look and determine whether your information base to start with was sufficient.

Mr. GUSMAN. There are several people who have indicated that they would like to make comments and let's take them in this order, Ms. Greer, Mr. McGrade, Mr. Nosenchuck, then Mr. Kerrigan and then Bill Wallace.

PUBLIC'S RIGHT TO KNOW ABOUT HAZARDOUS WASTE SITES

Ms. GREER. I would like to go on the record saying that I feel strongly that the public deserves a list which is based on the information we have in society and which tells them what the hazardous waste sites are in the country. This list should only reflect problem sites and not reflect the political or economic or philosophical base of where they are located.

Therefore this list should not incorporate State preparedness. I feel strongly about this because I feel that once people see the sites on the list, and their State isn't prepared, people will become inspired to put public pressure on their State to get prepared. I think this pressure is something we need on society to solve these problems quickly before further damage to human health and the environment occurs.

However, I think that the discussion has been more polarized on this issue than it needs to be. I agree that money should be spend first where States are ready to spend the money, and I agree that our biggest problem is getting money spent as fast as possible and getting the job done.

So, I would like to suggest there is not the dichotomy here than it appears. If we look at the list as a list which identifies the problem sites and keep in mind that that list does not mean who is going to get funded first, that will meet the public needs. Then, if the States that are ready will get the funding first and that the other States on the list do not necessarily impede those States which are ready from getting the money, that may solve the State preparedness problem.

So, I would like to suggest there might not be quite the dichotomy here as there seems to be.

INDUSTRY CONCERN, STATES' INVOLVEMENT, AND KEY FACTORS OF MODEL

Mr. MCGRADE. I am going to basically echo what Reva Rubenstein and Bob Kissell said about industry's concern that the clock is ticking and that we not spend a lot more time on making the model perfect. The approach of providing scoring guidance that allows more flexibility in consideration of information is imminently reasonable and it can be done in a reasonable period of time. The process can easily be made to allow for consideration of more data, and data not now considered by the Mitre model. But, we should get on with the job of getting the best list that we can put together with a modified Mitre model so that we can begin cleaning up the sites. That is what we would like to see done.

I think that the States are an essential part of this whole process and the way EPA has brought them into it—that is, through nominating the sites as candidates—is probably the most cost-effective way and the most practicable way of getting this immense job of screening done. The Mitre model must be applied to a reasonable number of sites, otherwise the costs would not bear a reasonable relationship to the benefits.

I would like to say one thing for the record. I am concerned about the guidance that is given on some of the key factors in the model. It should not be so rigid a system of scoring that it becomes nothing more than a rote action or something you can put into a computer on one end and the results and decisions come out the other end without any common sense being applied.

I would like to see some provision for some professional judgment on which data is acceptable and pertinent and which data is not.

Mr. GUSMAN. Norm Nosenchuck.

Mr. NOSENCHUCK. Thank you.

EFFECT OF INFLATION ON INDUSTRY CONTRIBUTION TO FUND

Bob Kissell stated earlier that he was talking about industry money. The industry money comes from a tax on certain chemicals. This tax is passed on to the consumer, so it is the American public that is providing the money, and it is the same American public that is providing the money to the Federal Government to EPA for the Federal share. So, it is actually the public that is providing all the money under the Superfund program. And from all the polls I have seen, the public wants this activity to continue.

The concern that I have is that inflation decreased the value of these funds. More and more money is needed every passing year to do the same thing that could have been done in a preceding year.

Again I submit, let us not lose sight of our goal which is cleanup of sites that are releasing hazardous substances, pollutants, and contaminants which are a danger to public health or welfare or the environment. Let's get on with the job.

Mr. GUSMAN. Let's move next to Jim Kerrigan.

DEFINING THE USE OF MODEL

Mr. KERRIGAN. I want to expand on a point raised by Linda Greer. The use of the model should be well defined so that the data and technical judgments used can be reviewed and audited. The screening process used by the States should be sufficiently flexible to allow for scientifically based judgments.

It is necessary to provide sufficient guidance to the use of the model so that auditing procedures can be followed by the technical people involved. Representatives from private companies that have responsibilities for a given property should be involved.

Mr. GUSMAN. Tim Haley, did you intend to speak to this point or a point related to this? I would like to, if indeed this is your topic, I would like to keep this aspect of the conversation going and then turn to other people.

INTENT OF CONGRESS REGARDING NATIONAL CONTINGENCY PLAN

Mr. HALEY. I think the important item to bring up at this point is that we should not even be here today. Congress said that within 180 days after the enactment of CERCLA that EPA should have published a national contingency plan to set forth certain criteria and the NCP should have included a national priorities list. That should have been done in June 1981. It is now March 1982 and we are sitting here talking about developing new criteria for doing a new list that should have been done almost a year ago. I think that is the point that we really have to keep in mind. It is not for us to decide what should go into the list now, when it should have been promulgated a year ago. Congress was very clear in expressing its intent as to when and how the list should be done.

PERCEPTION OF THE SITE LIST

Mr. GUSMAN. The point that you make, I think, raises one of the issues that was brought into focus during the informal discussion period; that is, that different people are thinking of the list in somewhat different ways. Some think of the list as a list of highest priority sites for cleanup and then raise questions about the inclusion on the list of sites that may not have that degree of urgency. That is the scale on which they look at listing.

Others look at the list as a list of priority sites that would involve Federal action in the cleanup. They might not choose to include on the list sites that may have equal priority from the point of view of the hazard or risk they pose where the cleanup is intended to be handled without Federal involvement.

A third way, of which there has been some mention, is identification of a list, "highest priority sites" from the point of view of public perception that the listed sites that are the most dangerous and present the greatest risk or hazard. Regardless of how one views listed sites from the point of view of funding or technical action, there will also be a public perception that listed sites need to be dealt with and should be dealt with.

On that last point, my hope is that we will get into some discussion of it this afternoon.

I thought nonetheless it would be useful to make these few comments to point out the diversity of points of view that do exist in this room.

Bill Wallace wanted to comment.

VIEW OF PRIORITY LIST BY INDUSTRY

Mr. WALLACE. Yes. Looking at the priority list, our clients have expressed to us that we want to be good neighbors. To the extent that being on the list causes them to not to look like good neighbors, they feel there is a definite incentive to take action. If industry were made aware that they could be placed on this list and that the list was to be made public, they would likely take action ahead of time.

This is the concept of the leverage that we spoke of earlier.

Hal Snyder made a statement before that the list of 400 sites is not actually limited to 400. The law states that it is a list of at least 400. The possibility of a longer list gives rise to some other alternatives that may solve some of the problems that we have been discussing today.

It seems to me that the list can be structured in two ways: It can be very discriminatory such that only proven problems go on the list. Before being listed, sites would be thoroughly investigated to make sure that they posed real problems. The owner of the site would be given an opportunity to clean it up before listing. This list would be very close to 400 sites in length.

For sites on this list, EPA could let it be known that it has irrefutable evidence of risk and hazard, and the owner has been afforded every opportunity to take action.

On the other hand, we could decide to have a very long list. For this list, sites which seem to have problems would be listed in priority order, based on a Mitre model ranking. These sites would then be investigted, according to their apparent priority, to determine if problems really exist. New information could move sites up or down on the list, depending upon what the investigation found. In this type of system, it would be understood that sites on the list may or may not have problems. Hopefully, this may avoid the problems involved when one attaches much significance to a site being entered on the priority list. At the same time it still provides some incentives for companies to investigate or respond to problems at their sites in order to remove it from the list.

The longer list, you don't have to get to that detail, you can describe, as many people discussed here in the past 2 days, that these are potential problems and that we are exploring it further. And if that is possible, I am not sure, it may be possible to make that distinction very public and look for actions to see whether it gets removed or gets moved up and down and proceed on the problems very quickly because if we can get out of the hassle of deciding how better to make the model in order to solve these problems, then we can get on with the program a lot quicker and we can still have the list and we can still create the list and continue on with the job at hand.

Mr. GUSMAN. Randy Mott.

NECESSITY OF GOOD LISTS AND MODEL

Mr. MOTT. I would like to begin with I think a description of what I think is the practicality and necessity of having a good list and a good method. EPA is going to have about 800 to 1,000 candidates this year for which it will select a list of at least 400. In reality, we heard only the top 200 will probably get regulatory attention. So basically the system that they are using will have to have the ability to distinguish between the upper one-fourth or upper one-fifth of the sites in terms of degree of threat to public health and the environment. That is a greatly more sensitive system and requirement than the one that went into putting together the interim site list.

The second problem. Interim site was done with open study, notorious site, and the sensitivity of the system to score those was a lot less important than it is going to be when you get down to site 800 in terms of your input and how you arrange those.

So the need to have a system that accurately portrays public health and environmental risk is growing.

The second point is the list will be annually revised, it is not a one-shot deal. The statute requires it be a rolling list. So as there are changes in the list, those changes have to be on the basis of an objective systematic way to assess risk. And since there is particularly only a limited number of sites that would get fund financed attention, it is critical that the system have the ability to accommodate additional data in the most rational way available.

MODIFICATION OF SYSTEM

With that in mind, I think there are modifications to the system that are critical for it to be a rational product. These modifications, I think without exception, do not involve any additional data collection burden or delay in assimilation of the list, they simply involve a change in the way existing information is processed. And I think it is arbitrary and capricious within every meaning of the phrase for EPA to have good information and not use it in selection of good sites. These selections are all practically and legally important.

The first is that the waste quantity score is the most sensitive parameter of overall site score of any of the lists. EPA, I think, should have specific guidance on how waste quantity should be scored and should rigorously enforce those. In particular, the act only allows you to look at hazardous substances under Superfund and the Agency should make sure it is scoring sites on the basis of the amount and quantity of regular hazardous substances on the site.

CLASSIFYING HAZARDOUS WASTE

Second, the instructions that were used for the interim list for waste characteristics said take five things you know are there, hazardous substances, and look at toxicity and physical state and take the one that will have the highest score and call that representative. I think that EPA has an obligation to pick representative waste for that characteristic. Particularly at least to the extent that there are contaminants present, those de minimis or trace contaminants should not be used to jack up site waste characteristic score. The classic example would be a site where a lot of chlorobenzene—any site with benzene is going to have a product or byproduct, it is going to have trace elements of chlorobenzene. If that site is scored under EPA instructions as issued to date, it would achieve the same score as the site with the same volume of persistent toxic pesticides components. From the side of long-term remedial action, a large number of them would mark the waste characteristic score or came darn close and that destroyed the selectivity of the system. So one way around that is where a trace contaminant is present and the data is available to apply some judgment and make that waste characteristic score mean something.

PERSISTENCE IN MODEL

The third issue is the problem of persistence. It is given a special weight in the Mitre hazard ranking system and it is magnified by a multiplier but I don't think that is enough given the field testing that you got in the 115 sites to really show that is distinguishing site with persistent compounds from sites that don't have consistent compounds.

Maybe the de minimis rule might eliminate on waste characteristic, but the statute provides expressly that persistence be considered in listing sites for terms of risk assessment of what long-term remedial action is needed at the site. There isn't hardly a site condition more important than the persistence of the compounds there. When you are dealing with compounds that have a half-life greater than western civilization, that should be given greater weight than are toxic or diluted or otherwise are harmless. The half-life in the solvent compounds in surface water is measured in terms of 20 to 30 minutes and those compounds should be treated differently in the Mitre model as now instructed and implemented does not.

ADD-ON SCORING VARIABLES

The next is a series of three things I think that should be in the form of add-on scoring variables where in no case am I saying don't put a site on the list because you don't have data about these things, but where you have data about these three things, it is the height of irrationality not to consider that data. I think it is not only bad policy, it is possibly illegal.

The first is where you have geological barriers that indicate that in fact the population you are scoring on, the second most important individual parameter in the middle, population at risk in the 3-mile area, if you have data that say geological barrier less than a 3-mile radius is going to be affected, you ought to incorporate that data. There ought to be a standard method and value that modifies the score.

Ground water flow. We know that ground water moves slow and someone can argue that it takes years before that bad stuff reaches those wells. What I am referring to is regional water system that under no stretch of the imagination is going to be altered by withdrawal or other sources. And if ground water changes the population at risk, it would be irrational not to include that. There are sites in States represented in this room where ground water flow is extremely important and would change scores.

The last point I want to make is the concentrations of receptors. The model does not show concentrations at all and the real important point at risk is the concentration reaching the receptor significantly from a risk standpoint and concentrations measured, if you will, by existing standards are just good toxicology. And the point I want to make, the system ought to have the ability where there is good unconverted data at the point of the receptor showing de minimis concentration, that the system ought to incorporate that and the scores for either the receptors or for the release or some fashion ought to be altered mathematically so that site backs down.

PRIVATE INPUT INTO SITE SELECTION

Now, the last point I have to make, and I am taking a lot of time but I feel these are the critical practical issues that on a 6-month time frame are going to be the key, is there is no adequate vehicle at this time for private input into the Superfund site selection.

Specifically, we had input into the 115 site list solely because we went to States and found the candidates they were submitting and managed to whip in somehow data and information in the process.

There was no systemized way that could happen. We requested from EPA the names of the candidates the States submitted in February and yesterday they denied that request under the Freedom of Information Act as privileged, so I am not sure, given the fact the States are not going to score and nobody else is going to find out what the States submitted, how anybody is going to have an input how EPA is going to score these sites.

It seems to me that is both a problem since 105 of the act requires notice and comment in the whole NCP and the list is part of the NCP. But, it seems it is locking out people that can have better data input than they already got. That would seem typical for the purpose of producing a rational list.

Those are my grievances. They are not directed at anybody personally, this is EPA as the institution. But, the problem is the list may be less than the rational product that I think everybody feels it has to be.

Mr. GUSMAN. If there are no additional comments, let's bring this——

Mr. SNYDER. I have one comment.

Mr. GUSMAN. Hal Snyder.

COMMENT PERIOD FOR NATIONAL CONTINGENCY PLAN

Mr. SNYDER. Yesterday when we talked about the record and when the record might be available and the use of the record as a way to make this discussion open and part of the NCP review process now that the NCP is closed, I want to add to that that the comment period for the national contingency plan closes April 12. I would suggest that for anyone here as well as anyone else anywhere, that for the specific ideas that they may have relative to how this sytem ought to be changed, they should prepare those in writing in addition to whatever may be on this record. They should prepare those in writing and submit them to the Agency as provided and directed by NCP and that for any of the ideas that you have relative to a change, you should provide enough information and instruction and guidance and fact and science and whatever else is involved in the point you are raising so we can actually consider it in a meaningful and timely way.

A suggestion that we do something very complicated without any clues as to how we might do it will not serve a very useful purpose. As one makes suggestions that relate to things where criteria would be needed in order to use the technique and criteria is absent, at least in the general knowledge of the people in the field or absent in any of the regulatory tools that currently exist for environmental programs that you should suggest a way to get that criteria. Terms like trace amounts de minimis are not easy rigid terms, they involve a lot of criteria development in many cases. So, if one can provide that, your ideas will have more meaning and more potential use.

Thank you.

INCLUSION OF RECORD AS PART OF COMMENTS ON PLAN

Mr. GUSMAN. Just focusing on this meeting and this record, do I remember correctly you stating that this meeting record will be included as part of the comments?

Mr. SNYDER. It can be. I do mention that this record, the NCP comment period closes April 12 and while I know that there was a desire on the part of OTA and others to move along promptly with this, things sometimes don't always measure when you want them to.

I am saying that anyone here who feels they have a special idea they want to incorporate, and I think there are several people here who said that, and especially when they get back to their offices they may be able to amplify on ideas that they either put forth here or have heard from others and they want to then build on, that they should do that and submit it in writing in the NCP and then there is even a better chance that they would get consideration.

And I would also urge you, just because it says April 12, there is no law against sending it on March 22 or 23, and in the interest of speed and desire to move the program forward the sooner that we learn of these ideas, the sooner the staff will be able to make a meaningful incorporation.

Mr. BERGER. Let me make a technical statement. I don't believe that this record will be ready by April 12 in its edited form for submission.

Mr. SNYDER. If you want a better mousetrap, go home and draw it up and send it to us.

CLOSE OF MORNING SESSION

Mr. GUSMAN. Let's bring this part of the session to a close. We will start again at 1 o'clock this afternoon.

[Whereupon, at 11:57 p.m., the luncheon recess was taken.]

(Afternoon Session, 2:40 p.m., Saturday, March 20, 1982.)

SUPERFUND WORKSHOP

AFTERNOON SESSION SCHEDULE

Mr. Gusman. We are starting this afternoon's session with a somewhat different schedule than we have used so far because one of the members of our group must leave early. So, we are staring this session with his individual comments.

Norm Nosenchuck.

CLOSING REMARKS BY MR. NOSENCHUCK

Mr. Nosenchuck. Our goal is to clean up sites that are releasing hazardous substances, pollutants, and contaminants which are a danger to public health or welfare to the environment. Each State should compile a hazardous waste site inventory which should be a living document with full public particiation.

Section 3012 of the Resource Conservation Recovery Act entitled "Hazardous Waste Site Inventory" directs this type of activity. This section requires each State to undertake a continuing program to compile, publish, and submit to the EPA Administrator an inventory describing the location of each site within such State at which hazardous waste has at any time been stored or disposed of. The inventory would include, along with other items, information relating to the amounts, nature and toxicity of the hazardous waste at each such site as may be practicable to obtain as may be necessary to determine the extent to any health hazard which may be associated with such site, also information concerning the current status of the sites.

The $20 million authorized to carry out this work has never been funded by the Federal Government. This is most unfortunate.

EPA should be required to develop a sublist of those sites that EPA is prepared to spend money on now for cleanup. This list should contain about 100 sites, and would be part of the national list of 400 sites.

I am also still not sure how the annual review and reevaluation process will affect sites on the national priorities list. It would appear that as remedial actions are undertaken, especially where such work is done in phases, sites could drop off the list before the complete remedial plan is implemented.

I raised this issue earlier.

I would like to commend Senator Garn and his HUD-Independent Agencies Subcommittee and the congressional Office of Technology Assessment for establishing this 2-day workshop on this very important, very critical issue. I am pleased that I was able to participate.

Mr. GUSMAN. Let's take a break at this point from the record. We need to resume our discussion again after this break.

[Whereupon, a short break was taken.]

Mr. GUSMAN. Before we start the session panel summary, I would like to turn to Hal Snyder for a brief additional clarification from him of the procedural matters that were handled in brief discussion earlier today regarding what the status will be, as he sees it, of the record of these discussions.

Mr. SNYDER. Thank you.

CLARIFICATION OF WORKSHOP AND OFFICIAL RECORD ON NATIONAL CONTINGENCY PLAN

I want to provide a clarification of the relationship of the record of this meeting and the official record for the national contingency plan which is now proposed in the Federal Register.

The comment period for the national contingency plan ends on April 12. This is not a substitute for official comments to the Agency on the NCP, consequently this record will not be an official comment to the NCP. Consequently, anyone who wants to make a specific comment should do so separately. In effect, I would encourage anyone participating these past 2 days who have recommendations that they want to make regarding the hazard ranking system, how it is operated or implemented, to prepare that in writing with as much detail as they can relative to how it would work and how we should incorporate it and submit that to the Agency at the earliest time possible prior to April 12 so we can consider it.

Mr. GUSMAN. I gather that this record will be available as part of the file of your discussions during this period.

Mr. SNYDER. That is correct. If you recall, we commented on the procedural matter that relates to ex parte discussions on the part of employees of the Agency relative to an action that is currently being proposed. The discussions that are being held here today on things related to NCP are in the view of EPA counsel not ex parte because there is, in fact, a record being taken. That record will become part of our file to show whoever is interested that the discussion was ex parte.

SESSION PANEL SUMMARY OF EVENTS

Mr. GUSMAN. Thank you. Let's proceed, then, to the session panel summary of events.

Karl Birns, I wonder if you want to start this discussion, as you started the informal discussion.

Mr. BIRNS. Thank you very much, Sam.

FLOW CHART REGARDING SUPERFUND ACTIONS

The way the discussion started was that during the lunch break some of the people that are attending the group here got together and we drafted a proposed flow chart to be used to follow through some of the reasoning, and bring out some of the points that have come up in the course of the meeting. It will reflect some of the concerns that are part of the session we were about to enter.

I will like to, if it is OK with you, Sam, go through it briefly for the record. A copy of the chart is being made and that will be submitted.

Mr. GUSMAN. That will be helpful.

[The information follows:]

BEST AVAILABLE COPY

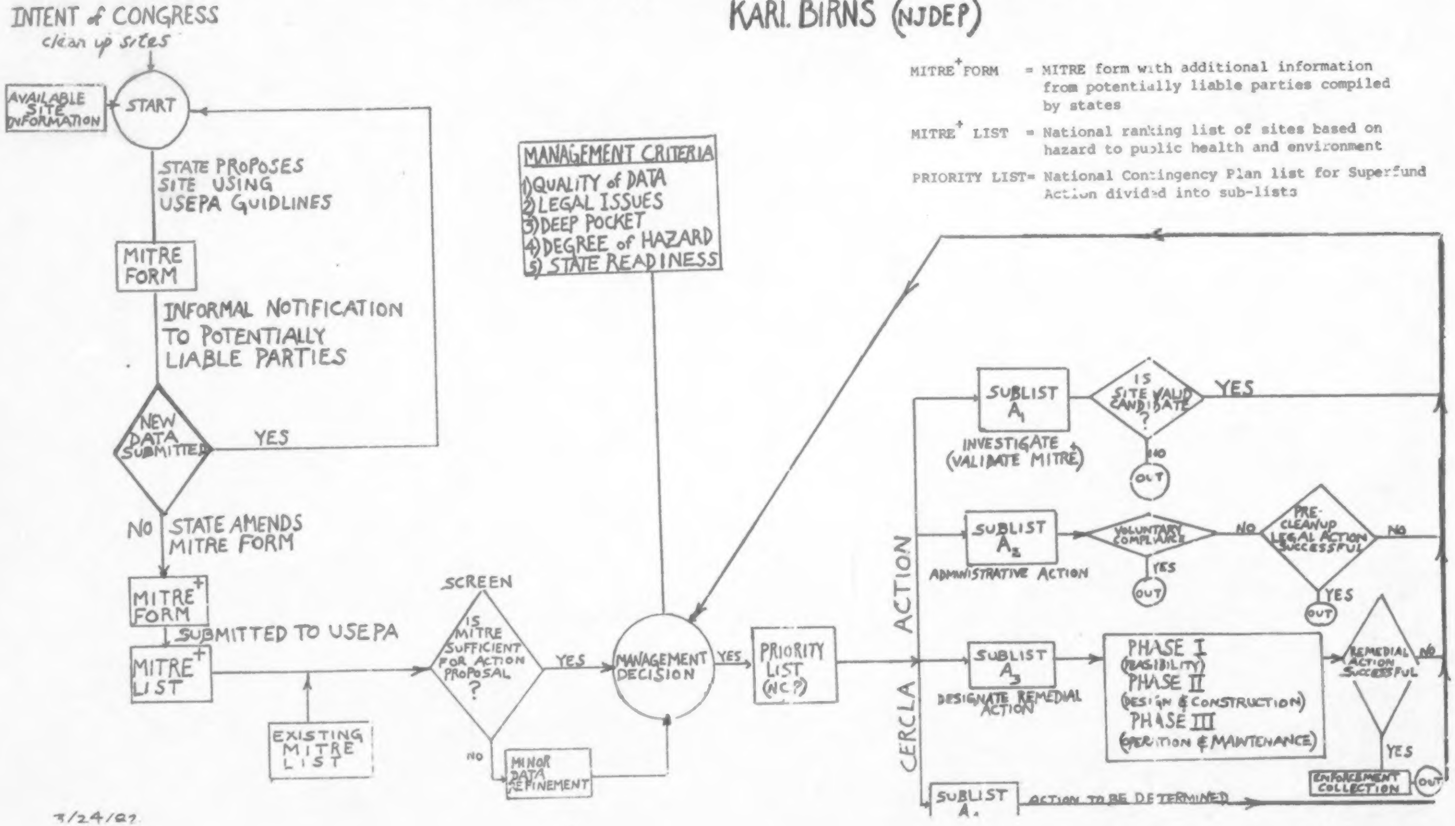
SUPERFUND (CERCLA) ACTION DECISION MODEL

KARL BIRNS (NJDEP)

MITRE$^+$ FORM = MITRE form with additional information from potentially liable parties compiled by states

MITRE$^+$ LIST = National ranking list of sites based on hazard to public health and environment

PRIORITY LIST= National Contingency Plan list for Superfund Action divided into sub-lists


INTENT of CONGRESS
clean up sites
AVAILABLE SITE INFORMATION
START
STATE PROPOSES SITE USING USEPA GUIDLINES
MITRE FORM
INFORMAL NOTIFICATION TO POTENTIALLY LIABLE PARTIES
NEW DATA SUBMITTED
YES
NO
STATE AMENDS MITRE FORM
MITRE+ FORM
SUBMITTED TO USEPA
MITRE+ LIST
EXISTING MITRE LIST
SCREEN
IS MITRE SUFFICIENT FOR ACTION PROPOSAL ?
YES
NO
MINOR DATA REFINEMENT
MANAGEMENT CRITERIA
1) QUALITY of DATA
2) LEGAL ISSUES
3) DEEP POCKET
4) DEGREE of HAZARD
5) STATE READINESS
MANAGEMENT DECISION
YES
PRIORITY LIST (NCP)
CERCLA ACTION
SUBLIST A1
INVESTIGATE (VALIDATE MITRE)
IS SITE VALID CANDIDATE ?
YES
NO
OUT
SUBLIST A2
ADMINISTRATIVE ACTION
VOLUNTARY COMPLIANCE
YES
OUT
NO
PRE-CLEANUP LEGAL ACTION SUCCESSFUL
YES
OUT
NO
SUBLIST A3
DESIGNATE REMEDIAL ACTION
PHASE I (FEASIBILITY)
PHASE II (DESIGN & CONSTRUCTION)
PHASE III (OPERATION & MAINTENANCE)
REMEDIAL ACTION SUCCESSFUL
NO
YES
ENFORCEMENT COLLECTION
OUT
SUBLIST A.
ACTION TO BE DETERMINED

3/24/82

PURPOSE OF FLOW CHART

Mr. BIRNS. The flow chart was designed to be used as a data gathering and management tool so that EPA and the States could make decisions regarding Superfund actions.

The initial premise is that, it was the intent of Congress in passing the Superfund legislation that hazardous waste and hazardous chemical sites should be cleaned up. They presented a hazard to the public and environment and should be taken care of.

DESIGN OF FLOW CHART

The first thing on our flow chart is the start. The input into the start is any data that exists in the world, either at the Federal level, State, or from some other source, regarding a potentially hazardous site. It would then become the State's responsibility, using EPA guidelines, to Mitre-ize that site; that is, fill out the Mitre form. Using that Mitre form, they would then notify any potentially involved parties that they had an intention of submitting that form to the EPA for national Superfund ranking.

If the parties involved had additional information to bring before the State agency, this would be their opportunity to do it. In such cases, this new information would be fastened into the Mitre form and it would generate what we now call the Mitre plus. This is the Mitre form after there has been an opportunity for revision at the State level.

These Mitre plus forms would then be submitted to EPA where they would be put on a Mitre inventory of hazardmus sites. This inventory would be based on the first cut submitted by the State and it would be looking at hazards potential to public health and the environment from sites submitted by the State.

At this point the Mitre inventory would be subject to a management evaluation. This management evaluation would be done by the EPA and the State. We discussed whether or not they should be fixed criteria or whether or not it should be subjective criteria. I think there was a lot of discussion for and against both ways. Some other speakers will address this.

Some of the management issues that would be focused on would include the quality of the information that was submitted by the State, the legal issues involved with the site, the readiness of the State to participate in a Superfund action, whether or not there was a deep pocket or collectible pocket in terms of a potential discharger, and the degree of relevance or imminent hazard which might be reflective on the type of action that would have to be taken.

Coming out of this management box is a minor investigation loop. This is a polishing loop which would allow EPA or the State agency to go back and find out if there were any odds and ends or little pieces of data, that were necessary before they could provide a management decision.

If there was no need for additional information at this point, a management decision would be made for what we call the action box.

This management decision would result in an initial national contingency plan list. This is an action plan and it would be broken down into a number of sublists.

The first sublist is the investigation loop. The purpose of this investigation phase would be to evaluate the information that was used in making the initial Mitre plus submission if necessary.

Another sublist, which is really a nonlist, would be those items that for one reason or another could not be evaluated; that is, the nonaction sites.

A further list would be administrative actions that the Agency could take. This would include seeking voluntary compliance and, if voluntary compliance was not forthcoming, then going on to what we call precleanup legal action using the appropriate legal tools to force a potentially liable party to proceed with a cleanup action.

The final sublist, which we all focused on as the most critical one, is a list of sites identified by EPA as part of the national contingency plan, that were going to be funded for remedial action under Superfund.

Now, this list of sites we discussed could either be everything done all at once, or it could represent only a portion of the submissions that are currently before the EPA.

This list of sites would then be funded for a phased evaluation cleanup including feasiblity studies, design and construction, as well as operation and maintenance. Subsequent to what I will call the engineer and clean up response, there would be provision for legal action to collect funds expended out of the Superfund.

It was recognized that at any point in time there would be need for some flexibility in moving a specific site from one sublist to another depending upon whether or not there was a change in the status vis-a-vis compliance or new information available or what have you. This was not looked upon as a list that was cast in concrete, but rather as a document that would need continuous updating to reflect the actual real world conditions at a specific hazardous waste site.

Mr. GUSMAN. Thank you.

Do you have any other comments about the discussion?

Mr. BIRNS. The only other summary comment I have at this point is that we also discussed cost effectiveness. We decided that cost effectiveness would come in as a consideration once you are down to the sublist on remedial actions. I don't think we quite resolved how that would be handled.

Mr. GUSMAN. Are you talking about the sublist or remedial actions under Superfund?

Mr. BIRNS. Yes.

Mr. GUSMAN. There were a variety of points of view expressed on that.

Would you or one of the other members of the group care to start a recitation of some of these views?

Mr. BIRNS. Maybe somebody else would.

Mr. Gusman. Let me turn to Bill DeVille and ask if you would add to what Karl Birns has said both in terms of the outline and in terms of the management from the financial point of view of the items that are in that final box for Superfund remedial response.

Mr. DeVille. First, I want to thank Karl for getting the essentials of this done for us, because it helps clarify some of the areas of foggyness that, I think, have been pervading our discussions on the nature of the Mitre model, the nature of the list, and the nature of the decisionmaking processes involved in the list.

SUBLISTS IN NATIONAL CONTINGENCY PLAN

Let me comment on what I think are some of the major advantages to the idea of sublists in the national contingency plan.

First of all, I think it clarifies and provides for more clear delineation of management responsibilities, and moves toward achievement of the intent of the act.

Second, I think—and even more dramatically—it is going to clarify to the public the nature of the actions being undertaken, and the positions of the facilities which may be of interest to them in the process of Superfund action.

Finally, and I think of critical importance, this approach would help clarify and provide more immediate management availability of information, and more clear provision of information to the Congress, to industry, to the public, and to the regulatory agencies as to the status of projects, what is being done on what sort of projects, projects are under each category of action. Also, very importantly, there will be better visibility of the fiscal situation of the fund, the number of sites in various stages of the process at what cost, with resulting enormous simplification of those issues provided by this sort of approach.

MANAGEMENT DECISIONS

Now, as to the issue of the management approaches that would be taken, after receipt by the Agency of what Karl called the Mitre plus lists from the States. There has been some lack of final discussion—and perhaps it should remain that way at this early stage of discussion—as to whether the management functions described under "box," that should be stipulated specifically throughout by promulgation of regulations, or whether there should be some flexibility left to the Agency for decisionmaking.

My inclination would be for a mixture, with a good deal of flexibility left to the Agency for making the kinds of management decisions and midcourse corrections, and so on, that I think will be necessary to move rapidly for getting the fund on target.

Now, one point of discussion was cost effectiveness. I think this illustrates the need for some flexibility at the management level for decisionmaking.

Mr. Gusman. Were you talking to this point about the management decisionmaking box that precedes the listing?

Mr. DEVILLE. Yes.

Mr. GUSMAN. Are you now switching to management decisions that relate to the allocation of funds, for items that have gone into the Superfund remedial response box?

Mr. DEVILLE. Yes. I think there is a direct correlation of these two things. I think the decision as to which projects are stipulated in the published NCP as those for which funds are going to be expended for cleanup purposes has to be decided upon as project by project in that management function as the action plan develops.

SUPERFUND RESOURCES

The question of cost effectiveness is mandated by the act. Second, it is obviously important because of the limitation of resources. My own experience has been, in looking at sites, that I would hate to see the Agency management constrained by any simple guide for selections, such as, "Choose the worst sites first." The reason for that, first, is that I've been seeing little correlation between the cost of cleanup of a site, and certain types of degree of hazard—the types that were presented as risks at a site. I think flexibility needs to remain for the choice of sites, in that sense.

Second, as has been commented by someone in the off-the-record discussion, there are advantages to trying to get—at least in some areas—as many sites cleaned up as possible, those advantages being, obviously, public health advantages as well as assurance to the public of action, and the effective result of cleanup efforts by government.

In that sense, then, one would assume that the optimum management approach would be to combine an attempt to deal with serious public health hazards and also to maximize the number of resolutions of problems. And I think I will drop that point at this stage.

Mr. GUSMAN. Reva Rubenstein would like to comment.

Ms. RUBENSTEIN. I would like to continue with what Bill DeVille said because I agree with everything he has said so far. I would also like to say that if everyone has been given a chance to get themselves off the list prior to the time that one goes to that kind of resolution, then you are looking at the best public policy for cleaning up sites, again assuring the public, getting the most sites cleaned up and at least showing a record that everyone can be proud of.

But, there may be a use for those sites that are large perhaps, that may be bad, that may be technically difficult to handle. They represent research projects and questions for the future development of technology. To overlook that would be a mistake and perhaps Congress should be thinking about the allocation of funds for those very research purposes which they have not yet done as far as I know.

ALLOCATION OF FUNDS AMONG SITES

Mr. GUSMAN. Do you have any further comment by way of summary of what was discussed in the off-the-record discussion on allocation of funds among those sites that have been identified on a sublist for Superfund remedial response?

Ms. RUBENSTEIN. There was some discussion by all groups about orphan sites, truly orphan sites versus those that have some contribution from private industry, for cleanup. Surely the reason for the Superfund was to take care of those sites for which there is no other remedial pocket, if you will, and there was, I sensed, agreement that EPA should be moving ahead on these under the direction, of the States, where such sites exist.

If not under the direction of the States, but certainly in cooperation with the States.

There also was some discussion very early about what the perception of the list is to the public and we had a great deal of difficulty here deciding what the perception of the lists were among ourselves. There was general agreement there should be some mechanism for input of data or getting delisted for a State to use to privately put pressure on those groups that could come forward if they did know there was the fear of making them public.

Mr. GUSMAN. Dan McGrade, would you add to what you heard so that we get an even better picture of what was said?

Mr. MCGRADE. There is one issue that I think was briefly raised and passed over quickly, and that was the secrecy issue. We didn't really resolve how to handle that. The suggestion was made that establishing some kind of guidelines that allow responsible parties to get early input of additional information. The guidelines or criteria could be developed so that everyone would let everyone know what was appropriate for taking a substance off the list prior to publishing any lists.

Mr. GUSMAN. And finally for session panel summary, Hal Snyder.

DELAYS IN THE PROGRAM

Mr. SNYDER. One of the areas of discussion on the process being the New Jersey plant is concerning two areas, one of the speed of taking actions under Superfund which is related to the speed with which a list could be developed and published and more decisions that are required by EPA or States that may involve issues that are not as easily resolved as they are to write down, such as some discussion with potential response of the parties as to whether (*a*) they are the responsible parties or (*b*) whether they are willing to do something about the problem, it would simply delay the development of categories if the development of those categories was a prerequisite of the published final list and which one takes action of the Superfund, there was legitimate concern it could take a long time and, in effect, delay the program. And there were a number of people in the group who have concerns about delays in the program.

Somewhat related to that same point is the issue of how floating the process of determining what type of action might occur at a site by the type of action being voluntary action, legal action or direct use of the fund.

The experience that EPA has had, and I believe the States also have experienced, is that those decisions can change sometimes in short periods of time as suddenly one gets cold feet once the problem gets more. In any event, those decisions may not be very rigid.

The process of listing something in the Federal Register as part of the national contingency plan does give it some legitimacy.

Another issue that was raised and not fully addressed, this would be an opportunity to take advantage of the period when each member of the group can talk is related to which lists become public in the developmental process from the notion of gross list down to list of nominees by States at times when sites were first scored by States may, in effect, become some sort of a list, when the release of that information either willingly or unwillingly serve to manage individuals who think they should be on it.

Mr. GUSMAN. Are there any other additional comments to round off this summary by the members of the session panel summary group?

Mr. DEVILLE. I think Karl has brought up a possible concern that an approach such as this might tend to impede progress, rather than to expedite progress. That would certainly be unfortunate.

TYPE OF INFORMATION FOR MANAGEMENT DECISIONS

I think, in my own mind, that the amount of information—certainly that we in Louisiana have supplied or could supply—would tend to provide the Agency with an amount of information sufficient for making rapid management decisions as to the classification of any site for the NCP action list. That may or may not be the case in every State.

That raises the subsidiary question in my mind as to how often, and with what frequency one might publish updates of such a status list. And I would speculate that a fairly frequent publication of update might tend to avoid that problem of slowing down the process for any given project.

CATEGORY ASSIGNMENT OF SITES

Mr. GUSMAN. The impression that I had during the informal discussions was that there was a possibility that the category assignment of a particular site might change from time to time when more information is obtained or as negotiations go forward, in some instances at least. Is it fair to say that in the initial model as presented by you, Karl, that this was your intention, that the assignments be considered flexible and changeable as circumstance change?

Mr. BIRNS. Yes.

Mr. GUSMAN. Let me turn to Karl Birns.

Mr. BIRNS. Thank you.

CLEANUP OF SITES

Following through with what Bill said, it was the consensus by and large that there was agreement that action should be taken immediately. If there is a course of action already indicated, EPA should proceed as quickly as possible in establishing some sort of identification. Whether it be the list we discussed here or in some other form, EPA should identify those sites where it has sufficient knowledge, at this time, and is ready to proceed with actual site cleanups.

I think it was brought out during the discussions that the Mitre model generates a useful tool, be it called an inventory or by some other nomenclature, but what it generates is not sufficient to be used as the priority list under the national contingency plan. There has to be some way of providing a management function on the information derived through the Mitre listing that would then be used to develop a priority list.

IDENTIFICATION OF SUBLISTS

I think there were some parties, and this also came up in discussion, that felt that the sublists, as identified in this process, should not be ordinal but rather should be in groups. It is spinning wheels to try and determine whether a site should be listed as investigation No. 1 or investigation No. 2. Rather, there should be a grouping of sites that need investigation or sites that are in voluntary compliance without trying to spend a lot of time fine tuning.

We also discussed what to do with those sites that are currently in the system—the EPA list of 282 or 115 or what have you. The general consensus was that these lists, these currently existing lists should not be set back to the beginning and start from scratch but rather should be applied to the management phase. They should be evaluated now and only new sites should enter the system at its start.

Mr. SNYDER. Sam, I have a comment.

SITES REQUIRING TRUST FUND MONEYS

Mr. GUSMAN. Before I turn to you, Hal, one of the issues that was raised during the informal discussion is the question of how many sites of those that are now in the current list of approximately 100 are likely to appear in this last category that we have been discussing, the category entitled "Superfund remedial response list." I wonder if you would comment on whether you have a basis for believing that there would indeed be real entries in that list. Would there be serious candidates rather than none or essentially none in that list?

I am not trying to get a response as to exactly how many it would be, whether it would be 30, 40, 60. But would there be some substantial number.

Mr. SNYDER. From what we know at this point, approximately half of the sites in the 115 list would fall in the category of requiring trust fund moneys to implement significant cleanup action.

Mr. GUSMAN. Thank you very much.

CONSENSUS OF WORKSHOP

Then, let me turn to you for your additional comments of a summary nature.

Mr. SNYDER. This is more of a clarification nature in that I am not certain that the consensus was reached on all the points that Mr. Birns indicated there was consensus.

Mr. GUSMAN. I was going to comment on that in the summary of the entire 2 days' events. We have not really tested for consensus on anything in this session and it was not our intention to do so. So, we can't say that there is consensus on any point and I think each of us will walk away with perception of consensus in somewhat different ways.

My impression, which is no more than an impression, is that the element of greatest consensus is that of wanting to see action proceed, to see action proceed on actual cleanup and not to see efforts to improve the system by which sites are selected used as a way to slow that process down.

That is the one that I felt there was greatest consensus on. Others may feel differently.

In your individual comments, you might want to make a point of emphasizing what you see as the most important points that have come out of this session and those on which you feel there is greatest agreement.

Is there further summary comments by the panel session group?

Let's turn to individual comments. Let me first note that Richard Corrigan has been substituting this afternoon for Bill Wallace and he would like to start with a comment.

Mr. CORRIGAN. Thank you, Sam.

NUMBER OF SITES WHICH WILL BE CLEANED UP

I think one of the things upon which there appears to be a consensus is everyone's concern or at least that of a significant number of participants as to how many sites are actually going to be cleaned up and what commitment of money is going to be made available to each of them. There are several variables that have to be considered. One which I am not sure that anyone knows at this time is the total number of sites that reasonable men and women might agree need some type of treatment. That is certainly one of the things that we have yet to establish and will be better able to do so during later stages of the entire program.

THE COST TO CLEAN UP SITES

The second one is the cost to clean up each site selected for remedial action. We have some rough ball park estimates that EPA has suggested. I think they have suggested somewhere in the neighborhood of 175 to 200 sites might be addressed, with funds to be available through Superfund. Whether this is sufficient to address the total universe of sites requiring attention needs to be addressed. That is a fundamental question.

SIZE OF FUNDS

The third variable is the actual size of the pot of money that is available with which to effect various remedial solutions that are considered necessary or desirable. The amount of funds is dependent on several things. One is the $1.6 billion which is authorized under a Superfuind legislation, minus administrative costs. In terms of total cleanup, it is supplemented by how many additional compliance dollars are made available by voluntary cleanup efforts.

These variables, I suggest, have a very direct relationship. Obviously the more voluntary compliance there is, the greater the amount of cleanup as this will combine private efforts with those that come out of the so-called Superfund for abandoned sites or those for which the parties responsible lack the means to clean them up.

VOLUNTARY COMPLIANCE

An idea of my own which has not been discussed by the group may have some merit. It may or may not be perceived as controversial, but might be helpful to voluntary compliance. Encouraging the bringing forth of data without fear of prosecution may be a key to voluntary compliance. Data may be suppressed because of fears on the part of some who may or may not really be liable or prosecutable. I wonder if, in the existing law itself or any special actions that the Congress might take in response to this report, it might be desirable to create a period of limited amnesty. During that time any responsible parties who might feel that they would be out of compliance could come forth with data and information which could be used to evaluate whether there really is a problem. Understand, the amnesty would be limited to the matter of "no prosecution" perhaps for what the individual or group of individuals or firm may have done as long as they accept the responsibility for those actions.

Looking at the flip side, after providing a significant amnesty period during which people could come forth if they chose to do so, perhaps Congress might establish a bounty for those found to be out of compliance and not willing to accept their responsibilities.

Mr. GUSMAN. Thank you.

Let's turn next to David Lincoln.

ROLE OF SUPERFUND ACTION DECISION MODEL

Dr. LINCOLN. I wanted to emphasize some points that I heard this afternoon, principally on the plan presented by Karl Birns because I find it a very fascinating way of trying to organize a number of features that have been discussed actually several times over the meetings in the last 2 days.

In some respects I feel it unfortunate that we couldn't have started with this plan instead of ending with it because I think it would have organized some of the discussion points.

The plan presented by Karl Birns starts out by recognizing the general value of modeling, that is, as a mechanism for organizing and presenting information for decisionmaking.

A dependance on a model for decisionmaking is inappropriate for the large number of reasons which have been discussed today.

As I mentioned this morning, EPA already was acting over several aspects of post-Mitre ranking activities and I find this proposal provides a more formal mechanism for those post-Mitre activities.

It also serves the desirable qualities that were discussed earlier by Bill DeVille on the uses of an explicit management decision flow model and it clarifies the decisions that we have been trying to address into five categories. The mechanism for interchanges across these categories and in getting into these categories needs work, perhaps they are not the right five categories. I don't believe the time delay consideration that has come up is insurmountable, it may be just a question of which categories would be most appropriate.

The plan also provides a mechanism for delisting. All those details would have to be worked out.

SITES FOR PRIORITY REMEDIAL ACTION

One last comment that we only barely had time to touch on, but I thought would be worth raising at this time, is the notion of the priorities for decisionmaking on which sites should receive priority remedial action, that is the box that sits down toward the bottom of the model on the board for remedial actions. Again I will go back to something I said yesterday, this has an analogy with the control of toxic substances. You have decisions as to testing requirements for toxic materials, you then have priorities for regulation, and then you have decisions on the level of appropriate regulation.

I am talking about the box in the lower right of the model about priorities for regulation or implementation on remedial action of a specific site. The information you will have at that box for cost in performing some sort of cost-effective analysis, whether done formally or informally, is going to be highly uncertain because that kind of cost information is better developed in phase 1 or phase 2 of that remedial action plan.

USE OF PRIOR EXPERIENCE

So it would be necessary to be explicit at this point to recognize that uncertainty and in some way deal with it. I want to suggest again that there are mechanisms that have been utilized in the past in other decision schemes to handle this type of a problem. So rather than the need to reinvent an old wheel, I suggest one make use of the kinds of schemes that are currently in practice or make use of schemes that have had prior experience so that one is better able to develop a system for use.

Mr. GUSMAN. Thank you.

Randy Mott wanted to speak next.

APPLICATION AND INTERPRETATION OF MODEL

Mr. MOTT. I think the most critical thing that has come out of the 2 days is not so much the precise design in the model use for hazard waste site ranking but the application and interpretation of the model. Several things I think in our afternoon session would be marked improvements in the way Superfund sites would be selected for remedial response. First I think is the proposal to use sublists which would have immediate benefit of dividing out of the priority list in a public fashion sites that are simply there for further investigation and sites that are there for voluntary compliance at whatever point voluntary compliance was reached. These are, I think, major problems in public perception and it is difficult, even if it is true, to tell anybody that your client site is only on the list to be investigated. And that may, in fact, be true. We have heard the term, as many of us knew, that many sites are on the list simply to be investigated and are still only candidates for remedial action and that nobody should be limited, that the bulldozers are not running on those sites yet, that they are still being assessed.

ADJUSTMENT OF MITRE MODEL SCORES

The second thing I think our flow chart does is that it allows for additional information to be processed to adjust Mitre scores prior to the publication of the priority site list. I think for the reasons we outlined this morning, that is essential.

ELIMINATION OF SITE RANKING

The next thing it does, it eliminates a ranking of sites. I think EPA is absolutely right to say that they cannot do a ranking based on numerical and in the 115 group by groups of 10. However, if you analyze Mitre scores and what they mean in the variability of data such as waste characteristic and waste quantity and the population that is really affected versus the population in the 3-mile area, you realize the differences in the Mitre scores, 10, 20, 30, 40 points may not be really material to site conditions and I think it would be a far better improvement for the system which we have designed here on the blackboard for discussion purposes is really go or no-go decision on a site. A site is go or no-go and the reason to go to the no-go situation seems to me to be far preferable to even presenting that the rank order 1 through however many sites are going to be on the list for action to pretending that rank order means anything.

There is no problem later in determining if a bunch of people down in the box of remedial action which sites go first. At that point you have a lot more information than the Mitre score. There is no removal of a Mitre score as a tool to let you know which site goes first at that point, it is hardly a handicap. The Mitre scores would be the least reliable information to have available at that point.

PUBLIC INPUT TO SITE SELECTION

I think that the effort to allow serious input into site selection prior to the publication of the list will improve the public perception of the process, but from the standpoint of site input, and private company input, companies that may be considered responsible parties by the agencies.

I am extremely concerned that the current course EPA is going on will not provide sufficent funds early on for companies and other individuals to have input in the relevant information and viewpoints will get excluded from the listing process.

IMPLEMENTATION OF SUPERFUND

Lastly, I want to join what has been identified as a consensus of the 2 days that the pace of Superfund implementation is too slow. I would suggest the reason it has never been aired in any of these sessions is that the pace is so slow it is actually creating a backlash to industry and it is going to make it more difficult to resolve discussions of how clean is clean or whether a particular site needs to go forward or to what extent residual contamination could be tolerated, to what extent cost effectiveness and cost-benefit consideration dictate a particular response, it is going to make every decision that has to be made heretofore by the Superfund money difficult, more polarized and more political, and if anyone thinks that is doing a favor to industry, I think they are in error.

Mr. GUSMAN. Thank you.

Let me turn next to Bob Kissell.

DEFINING REMEDIAL ACTION

Mr. KISSELL. I will second what Randy Mott says. But I want to throw out a word of caution. My word of suggestion is I believe it is laudable to hope that when the list of sites which should receive remedial action is finally published and through time periodically revised, while it is laudable to assume that that list will contain the sites which will be more or less addressed simultaneously, I think we have to be prepared for the possibility and, in my opinion, the reality, that list will not get simultaneous attention for all components of the list. And therefore it seems to me that we have to be in a position, or EPA and the States have to be in a position, to provide some ordering attention in the phase site investigation design engineering segment to recognize that there may be funding limits, there may be contracting limits, and there may be regulatory agency personnel limits in doing all of these things all at the same time. And I don't know if I have an answer, but in addressing design questions or site investigation for the purpose of coming up with a remedial action, the one piece of information that is available is the Mitre ranking and I merely suggest that lacking any other piece of information, it may turn out that the Mitre ranking serves as the tool which provides the order at which to send teams out to try and figure out what the remedial action is of a site.

MECHANISM FOR DETERMINING SITE CLEANUP

The second point is once that array of remedial actions has been defined, there must then be a mechanism to determine which sites are cleaned up. Again I go back to the situation that exists, if there is insufficient money or there is insufficient technical expertise to refine. And it seems to me that the decision on which sites to respond upon should be those which would yield the greatest degree of risk and/or hazard reduction by some parameter that would be either in an absolute sense or in a risk and/or hazard reduction in some sense per dollar expended.

Mr. GUSMAN. At the start of your comment you said that you agreed with Randy Mott. Were you intending by that to say that you are generally supportive of the concept of the management model as proposed by Karl Birns?

Mr. KISSELL. Generally, yes.

Mr. GUSMAN. Dan McGrade, you wanted to make some comments.

IMPROVEMENTS TO MITRE MODEL

Mr. MCGRADE. Yes. I would like to give my impression of what happened over the last 2 days here. I think we discovered a couple of things. The Mitre model is a useful tool to develop, what I am going to call, for lack of a better term now, a rough cut list of priority sites.

Major modifications to the model, if they are going to result in delays in the cleanup program, are not desirable at this time. However, the model through better guidance and instructions can be made more flexible and can allow consideration to certain key facts such as concentration, hazardous waste quantity, et cetera, without lengthy delays.

I thought another point was important. The overall listing process should provide a mechanism for incorporation of additional data and I think Karl's model provides such a sound basis for discussion.

I got the feeling that the model should be aimed at developing a list that is perceived by people as needing further investigation and that it is not the purpose of the list to represent that there is sufficient information to undertake remedial actions.

I basically have no disagreement with the management process that Karl laid out. I do get a little concerned about making a number of additional lists and what will be the terms and definitions of those lists. I have to have a clearer picture of that.

Mr. GUSMAN. Let's turn to Jim Kerrigan.

USE OF MITRE MODEL AND MANAGEMENT MODEL

Mr. KERRIGAN. I want to support a few of the statements made. It is obvious that the Mitre model has limitations. However, it can be used as a preliminary method in ranking sites for consideration by EPA. In its management functions, EPA could decide to place individual projects into the categories and sublists that have been identified by Karl Birns.

Those are the two main points I wanted to cover.

Mr. GUSMAN. A question for you, then. Should I infer from that that you are generally in agreement with the tone of the discussion thus far that the model presented by Karl Birns has a future and that it should be explored further?

Mr. KERRIGAN. I consider the system that he has described and the use of the modified Mitre model, as we have discussed, would be an appropriate method for the States to identify candidate sites for consideration. Orphan sites are the responsibility of the States. Without proper review, a low-priority site could be placed on the national list.

The final list should be limited to those sites that are judged to have a high degree of hazard. The list should not be used to distribute funds to sites of low priority.

Mr. GUSMAN. Reva Rubenstein.

Ms. RUBENSTEIN. I agree.

Mr. GUSMAN. Let me turn to Hal Snyder.

CONCERN OF INDUSTRY WITH SITE LISTS

Mr. SNYDER. The point was raised in some of the earlier discussion about when private parties believe that they become adversely affected by being associated with some list and I, unfortunately, am not coming away with a very clear understanding of just when that may occur. It is reasonably clear that it occurs, if it is to occur at the time the final formal list comes out.

Mr. Gusman. There have been a number of comments both off the record, and I think also on the record, which suggest that if—I believe these are comments mostly or entirely with people affiliated with industry or industry associations—that their concern increases enormously when a site is placed on a national list as opposed to being considered for that list.

Could I ask for a quick either affirmative comment or a disagreement from the industry people here?

Mr. Mott. Absolutely, if the list is identified as an investigative list, I don't think it has very much stigma at all.

Mr. McGrade. I agree. The concern is that somewhere in the process before the list becomes the remedial action list, we would like to be able to get whatever additional data that we may have available and may not be known to EPA or the States into the process.

Mr. Kerrigan. I believe that the presentation made by EPA indicated that mitigation action would be taken on all the sites listed with high priorities. We are suggesting that by the use of sublists, EPA can indicate that some sites are only under investigation to determine whether they would be later listed for remedial action.

Ms. Rubenstein. I think the point that Karl has, sits better with me because it at least gives a clean loop of where industry can walk in and share data at an early stage and never even get on even a list, a list for investigation is the sense that has been missing.

And I agree, once you are on an investigation list, it is very different from being labeled as top priority bad news.

Mr. Gusman. Is there any further comment you have on that particular issue or any other?

Mr. Snyder. Actually, I don't.

EPA'S USE OF MANAGEMENT MODEL

Mr. Gusman. I have a question for you, the same one that I asked everyone who has spoken. Do you have a general sense of there being useful elements in the concepts that are described here by the model proposed by Karl Birns, the breakout into various kinds of proposed action for the elements that are on the list, the use of management consideration boxes and the like?

Mr. Snyder. For the most part, I think that the processes as described are actually the processes that are on today in the States and the processes that go on in the Agency. The left-hand side of that diagram is a process that does occur. It may not occur always in the same way in each State. I think it is very difficult to get 50 States to do things the same way.

On the right-hand side of the diagram relevant to developing sublists, my own view is that would be much more time consuming than anyone here realizes. That the kind of decisions that put things in various legal boxes as far as where matters are moving as far as settlement are not easily determined and there is always the 11th hour kind of issue which says I should be in category A rather than category B. I think it tends to make that process cumbersome and complex and time consuming. I think you will also find that particularly the Department of Justice, the experience that I have had, would be incredibly reluctant to put on a list those places where they intend to take legal action. They will be glad to tell you where the case is filed, but they will be more reluctant to tell you where they plan their next legal move.

I think that some of those realities will seriously affect the implementation of the schemes proposed on the right-hand side of the diagram.

Mr. GUSMAN. Before we complete this afternoon's comments, let me ask if anyone would like to speak?

INDUSTRY PARTICIPATION IN PROCESS

Mr. MCGRADE. I disagree with Hal's suggestion that the system really is in place for industry to participate in this process in the early stage and what I am saying is that the definitions in that model are geared to so rigidly that they preclude consideration of data in an attempt to maintain the equality of unknown sites where little information exists with sites where a substantial amount of data is known. I see this as the problem that needs to be resolved.

ADMINISTRATIVE PROCESS

Mr. DEVILLE. I have some difficulty in subscribing to Hal's view that this would be a cumbersome administrative process, which would be difficult to do. Particularly, as I had speculated a bit earlier, one might tend to look at this as a frequently updated list.

One of the things that I think comes out as clarification of what is going on is which sites out of all the ones that have been submitted for consideration are the ones that are really, at this point on the list and moving forward, or are at the point of cleanup action.

This is something that just pops up by inspection, according to the type of publication that we will call the Karl Birns publication. The value of that is enormous.

LISTING OF CATEGORIES

Mr. GUSMAN. Let me ask you a clarification on that. One alternative is to require a separate listing in each of those four or five categories, another that has been implicit but not stated so far is that one might not break out the categories quite so finely. One might have one category which is a Superfund remedial response list, the second investigative list and the third to cover other kinds of listings is another. I don't know exactly whether this is the right breakout, but one can create a structure with either larger numbers or smaller categories.

Do you have any sense of the minimum number of categories that might be useful to you?

Mr. DEVILLE. In one of the comments that I made earlier to a question—the voluntary cleanup one, I think—I noted that I would include in that a "Good Samaritan" system, in addition to any other kind of private party assistance. I am not sure that we would resolve part of the concerns about the legal thing, by sort of automatically having a category that implies that everyone that is up there on the past list the point of investigation, or past the point of voluntary cleanup, is potentially still on the list for litigation at some time.

MANAGEMENT MODEL'S FLEXIBILITY

Mr. CORRIGAN. In my opening comment I didn't express a view on Mr. Birns suggestion for the record. I think the plan he suggested here in the schematic does provide for additional inputs that may be critical in the final determination of which particular projects or sites go forward for remedial action. What it does is afford some degree of flexibility which is highly desirable in dealing with the very complicated world of hazardous wastes.

Mr. GUSMAN. Although I don't think that we could claim consensus, nonetheless it is clear there is a high degree of support for the plan in general, in particular for some of its features.

Karl Birns, let's give you the last word and then we will enter into the closing phase of this session.

WORKING WITH EPA ON MANAGEMENT MODEL

Mr. BIRNS. The last word, which may not be that, is for Hal.

As in the past, the State of New Jersey has been always willing and eager to. work with EPA in implementing programs and specifically Superfund. I would offer to you, Hal, that you take the message back to Administrator Gorsuch that within New Jersey's budget and manpower consideration if EPA would request some assistance in interpreting and understanding this potential way of solving some of the problems you have and properly applying it, I will be more than willing and glad to give some of my time and some of my companion time to come down here and work with you.

Mr. DEVILLE. I would say that I think a large number of States, including Louisiana, would be willing to provide assistance through further discussion.

CLOSING REMARKS

Mr. GUSMAN. Thank you very much.

I would like to make two closing comments and then turn the meeting to Wally Berger.

My first point is that I know we are going to have a record of this meeting. It is not going to read quite in the way that we are used to reading a report. It won't start with a summary, at the beginning, of all the salient points and then provide more detail as it goes forward. In a way the record needs to read backward. It seems to me that this afternoon's session has been a good summary session for the entire meeting. I would like to encourage some device in the record that brings people's attention to the fact that this has been a sequential development in which each session has built on the ones that preceded it. Therefore this last session really is the executive summary of the whole matter. One can turn back to the earlier parts of our meeting as one wishes, in order to see what builds up to this final session.

Much of this afternoon's session has been built around issues that have been structured into a plan proposed by Karl Birns. The issues that we needed to discuss this afternoon very much build on the discussions that preceded, since I know that this plan did not exist before yesterday morning; it was developed in the course of this meeting.

The second point I wanted to make is to say I very much enjoyed working with all of you. This has been a very instructive and I think useful session. We will have to see what the record actually looks like in order to know how useful it is. But, at the very least, it is my feeling that most if not all of us will leave this session with a better perspective on the overall picture than we came here with. Thank you very much.

And let me turn now to Wally Berger.

Mr. Berger. It has been a long 2 days. In fact, it seems like a long 2 weeks. On behalf of the Appropriations Committee I want to thank you all. Now, I would like to mention a few things in terms of housekeeping. One is that as far as I can recall this is probably the first time that the Senate Appropriations Committee has brought a group together in such an informal way and asked you to interact and discuss and consider certain points that have considerable bearing on what we are going to be doing in the next several years. Generally these kinds of sessions are much more structured and conducted in the limelight of a hearing where people are concerned with headlines and the amount of publicity they will receive as a result of their appearances.

I really don't know whether this workshop has been a successful experience or not. My sense is that I have learned a lot as a result of what I heard in both formal and informal discussions and I perceive that many of you have considered things and reached conclusions that you might not have considered 2 days ago.

In light of the fact that it is an experiment for us, I would ask each of you when you have the time to reflect back on what occurred here, to possibly drop us a note indicating not the substance of what went on but really the procedure and the process, the extent to which you think this is a valuable experience, the extent you think it might be applied to other program areas, problem areas, and also any constructive criticisms that you might have as to how the procedure might be improved.

We intend to follow up on this workshop very carefully. As Sam indicated and as I indicated yesterday, we will be having EPA hearings on April 20. We will be asking both Sam and Joel to appear at those hearings and present some of the views that were expressed during these 2 days. We will also be getting back to all of you a transcript of what you said. I will ask you to edit the transcript and add any additional information that you might want to appear in the record.

Right now we don't know exactly how many transcripts we will print. However, it does take several months to get the transcripts printed. I anticipate that we will have a sufficient number of them so that we can mail each of you copies for your relatives and friends and you will be receiving those courtesy of the Appropriations Subcommittee.

Once again, I really do want to thank all of you and I am looking forward to receiving those comments. This concludes my remarks.

Mr. DeVille. I want to make one comment. You asked me if I had any suggestion about additional categories. I am going to toss one out just to think about. In government we often are criticized for not taking action. Why don't we have—it would save the Mitre plus list—we have not had time yet to address this and we have to publish this thing, and say, here is a list with sites that have been submitted to the Agency on which no decision or action has been taken.

CONCLUSION OF WORKSHOP

Mr. Gusman. Let's close the session.

[Whereupon, at 4:15 p.m. Saturday, March 20, the workshop was concluded.]

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